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The Guide to Nature

Sound Beach, Conn.

AN ILLUSTRATED MONTHLY MAGAZINE FOR ADULTS, DEVOTED TO COMMONPLACE NATURE WITH UNCOMMON INTEREST.

EDWARD F. BIGELOW, Managing Editor.

A2383

G. D. TILLEY, Naturalist

Several pages of this number are devoted to his home and surroundings at Darien, Conn.



WE LIVE IN A "HOME NEAR TO NATURE."
If you would like to know who we are, see page 10.

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The house has seventeen rooms, an old, open fireplace, handmade woodwork and trim with original brass knobs. It's a little run down but could easily be restored and refurnished with antique furniture and made a most attractive place.

There are four acres of land with orchard, garden, barns, chicken house, etc. Just the kind to show "before" and "after."

Full particulars upon addressing this magazine.

GREENWICH--- This Page and Preceding (Second Cover)

Well Located Land and a Magnificent Home Near to Nature



FAIRHOLME.

The country residence of the late Nathaniel Witherell at Belle Haven, Greenwich, Conn., is offered for sale.

The property has a frontage on Mayo Avenue of 352 feet and is 660 feet deep; the rear faces on an avenue 75 feet wide; this rear would make extremely desirable building lots if desired.

The entire plot comprises about 5.3 acres; the house, on the highest ground in Belle Haven, has an unobstructed view of Long Island Sound; there is a yacht landing about half a mile away.

The first story of Fairholme is of stone, the upper stories of cement and hardwood timbers. The entrance hall is 18 x 40 feet, wainscoted, beamed and pannelled ceilings; large fireplace, and staircase all in oak. Library, oak wainscoted, beamed and pannelled ceilings, mantel in Byzantine carving, Tiffany stained glass windows, bay windows. Dining room 17 by 28 feet, colonial in style and finish, open fireplace, stationery china closets with mahogany sashes, bay with large landscape window, commodious butler's pantry. Parlor daintily decorated in white and gold; open fireplace and bay windows. Den, oak, wainscoting and ceiling. Toilet room.

Basement: well-lighted kitchen 15 x 27 feet, pantries, servants' sitting room and laundry, with tubs and toilet.

Second floor: two large and two medium

sized bedrooms, three dressing rooms; three tiled bath-rooms; three open fireplaces; sewing room. One of these rooms is 23 x 24 feet, with bay window.

Third floor: billiard room, three guest rooms, tiled bathroom, one open fireplace, six servant's rooms and servant's bath.

House is lighted with electricity and Springfield gas machine. Burglar alarm equipment; hot water heating; open plumbing throughout. House was built by day's work. It has an unusually large number of good-sized closets throughout.

Stable has eight stalls, large carriage room, and harness room. Storage ice house. Coachman's cottage; five rooms and bath; laundry. Gardener's cottage, six rooms.

Buildings are in same style of architecture as the house. There is a good sized green house on the grounds. The gardens contain a large variety of beautiful trees and ornamental shrubs, there are strawberry beds, asparagus beds, raspberry; currant; gooseberry and wineberry bushes in the garden.

The gardener of the property, Mr. Drummond, is occupying the basement of the house, and will show it to any party who presents a real estate brokers card. The property is free and clear. The price is \$150,000. Very liberal terms will be made to the purchaser. For particulars, address,

THE GUIDE TO NATURE

THE LAND AND THE HOME

A LOCAL DEPARTMENT

Real Estate and Home Supplies Along the Connecticut Shore

Sound Beach's Population.

A resident of Sound Beach has prepared statistics showing that there are about two hundred families in that village, exclusive of the larger number who arrive for the summer. He also estimates that the all-the-year-round population of the village proper is over six hundred.—The Greenwich News.

An Historic Button-Ball Stump.

Last month the only survivor of General Israel Putnam's day was removed from the place where it has stood for more than a century, on West Putnam Avenue, in Greenwich, Conn. This is one of the old buttonball trees which figured so conspicuously in Revolutionary days. It had a girth of twenty-one feet, but contained a hole on one side, large enough for several small boys to be admitted to its interior. The authorities decided that the tree was a menace, as a strong wind was liable to blow it over.

This is the last of the three trees

SOUND BEACH

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Sound Beach

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appeared in many New York and New England papers last month and attracted the attention of many.

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Sound Beach, Conn.

which were in Greenwich during Colonial times. One of the old buttonballs was in Cos Cob, on what is now the estate of Ernest Thompson Seton, and to which he has given the name of



THE STUMP OF THE BUTTONBALL TREE WHICH STOOD IN FRONT OF THE COLONIAL HOME-STEAD OF THE LATE COLONEL THOMAS A. MEAD.

It is now on the estate of A. A. Marks in Sound Beach, where it was set up as a Revolutionary relic.

"Wyndyghoul". This old tree was blown over in a severe northeast storm, some ten years ago, but the stump still stands, and is pointed out by Mr. Seton, as the spot where years ago, Coscob, the Indian chief, pitched his wigwam, and as the hiding place of Revolutionary soldiers who escaped from the British,

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SOUTH NORWALK

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by crawling into the opening in its trunk.

The photograph is of the button-ball which stood in front of the property of the late Colonel Thomas A. Mead, on the Post Road. Twice since Revolutionary days, it was struck by lightning, which marred its lofty branches, then a few years ago, it was blown and broken in a gale, which left nothing but the immense stump, fifteen feet high.

As in all of the other button-balls of ancient date, there is a cavity, and a hollow large enough to hold six men. The descendants of Col. Mead tell a story of how he and his aides escaped the British by crowding into this tree, and "the British passed close enough for the Colonists to touch their coat tails, and the words were heard as they went by, 'we must get him dead or alive'". This stump was dug out a few years ago by the late A. A. Marks, and removed to his estate at Sound Beach, where it is set up as a Revolutionary relic.

An Ideal Garden.

Situated in Stamford, on South Street, which is one of the principal residential streets, is a house and garden, occupying an acre and a half of ground. The house is large, roomy, and most excellently planned for convenience and comfort.



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: : : Rough Farms, Smooth Farms
\$1,500 to \$175,000

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STAMFORD CONN.
'Phone 61

The lawn in front, is well kept, and in the summer time is like a piece of green velvet. The garden in the rear, is ideal in every respect, as it has always returned much to the owner for



A ROW OF GERMAN IRIS IN MAY AND EARLY JUNE FILLS A SPACE NEAR THE TOOL HOUSE



GARDEN WALK BORDERED BY ANNUALS AND PERENNIALS, AND SHADED WITH PEAR TREES WHICH BEAR LARGE LUSCIOUS FRUIT.

time and labor expended on it. Here are grown vegetables, flowers and fruit. The vegetables are bordered by fruit trees on the south side and by a hedge of roses on the north. A greenhouse and grapery occupies some fifty feet or more space along the north dividing fence.

In this garden all of the summer vegetables find a place, as well as those which are tender and have to be raised under glass. From the photograph one can see how neatly the walks are bor-

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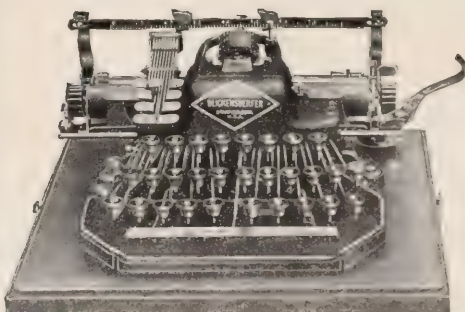
SAFETY—The Statutes of the State of Connecticut have for some years required the Trust Companies to keep a reserve equal to that required by the Federal Government of National Banks.

The Connecticut Legislature by an act passed in its session of 1907 required Trust Companies to invest deposits under the act regulating the investment of such funds by Savings Banks, and allowed five years for such conversion of investments as might be necessary.

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For particulars, inquire of THE EDITOR OF THE GUIDE TO NATURE.

dered by flowers, which are mostly annuals. This flower border has a foreground of grass, mowed closely, and its deep green enhances the beauty of the brilliant blossoms back of it. These are usually begonias, of the Vernon variety, which stands the hot sun, like a geranium. Back of these is a row of the green and white foliage plant, *funkia lancifolia*. As a background of varied color, are the taller annuals and perennials, such as phlox, canterbury bells, fox gloves, columbines, cornflowers, coreopsis, larkspurs, gaillardias, gypsophila, hollyhocks, dahlias, iris, sweet Williams, bee balm, and many more of the old and new favorites.

In one border we find a gorgeous array of the old dianthus pink, and the new ever blooming carnations. Another border is carpeted with pansies, and in early spring time, in a sheltered nook, the hardy double violets blossom side by side with the yellow cowslip, of our grandmothers' day.

From the garden succession after succession of vegetables are grown,



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from early spring time until late fall, and even in mid-winter, when the air is frosty, and the snow covers the ground, many inches deep, the hot beds at the far end of the garden, give forth, great heads of buttery lettuce, and snow white cauliflower.

The late owner, George H. Chase, took great pride in his garden and green houses, and was interested in growing prize bunches of grapes, car-



ANOTHER OF THE WELL LAID OUT GARDEN WALKS.

nations, chrysanthemums, as well as cucumbers, string beans, and peas out of season under glass.

This fine piece of property is now on the market for sale, and cannot fail to bring a good figure, as the house and grounds are in perfect condition, and furnished with all up-to date improvements.

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A ROW OF STANDARD, HARDY, EVER BLOOM-
ING ROSES SURROUNDING A PLOT OF
LATE SWEET CORN.

In the front is a neat row of double curled parsley.
At one side is the rose house.

Anyone with a small patch of ground within the city limits can make it pay in more ways than one, and if it is not necessary for the garden to repay itself in silver, the returns will be the pleasure and good health one gets in caring for the flowers and vegetables.

During March the most important deals in real estate, were the property purchased by the Diamond Ice Co., from the Stamford Water Co., and the property of the Humphrey estate being turned over to a syndicate of five well known men as a site for the First Congregational Church.

The property which the Diamond Ice Co., has just purchased, was for many years the site of the Harding Woolen

Mills, which were destroyed by fire in 1886, and was not rebuilt. The Ice Co., has occupied the substantial stone structure, which was one of the buildings of the old mill plant, since 1897. Part of this building is used as a laundry, but there is reason to believe it may be used by the Ice Co. in connection with a cold storage plant that the Diamond Ice Co. is contemplating for the future.

This company has all the facilities for a plant of this nature, as they have

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machinery for ice making, and the
recent purchase of real estate, shows
the flourishing business being done by
the management.

The First Congregational Church
has stood on its present site for fifty
years. The plot of ground on which
the church has made its home for so
long, is in the center of the city of
Stamford, and is a most valuable piece
of ground for business purposes. It is
estimated to be worth \$150,000. The
church society has had several offers
for the property. It has a frontage of
73 ft., 4 inches on Atlantic Street, and
189 ft. on Bank Street. The depth from
Atlantic Street is 306 ft.

The Humphrey estate, just pur-
chased, is situated at the head of Bed-
ford Park, at the junction of Prospect
and Bedford Streets. The ground is
somewhat raised above the level of the
streets, and is considered an ideal spot
for a church.

The holding company of this prop-
erty, are the Rev. Louis F. Berry, pas-



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tor of the church and chairman of the Prudential Committee, Amos S. Schoonmaker, chairman of the Business Committee, Isaac M. Scofield and Robert M. Anthony, members of the Business Committee and Frank W. Palmer.

Another important deal in real estate is that of the sale of Atlantic Street property owned by the estate of the late Mrs. Nancy Payne. It is said that Edward Taylor is the purchaser, and a business block will be erected.

Frank G. Gurley has a very desirable tract of land to place upon the market, at Shippan. It is situated on the east side of Shippan Avenue and extends to the Sound. There are over a dozen houses being built, and fine lots which will accommodate as many more.

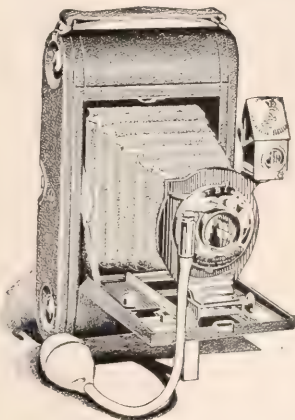
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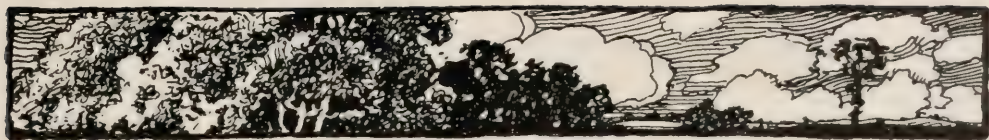
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All my waterfowl are kept on a large private lake and have not been confined in cages or yards. The cranes and many of the pheasants are at liberty in large parks. The pheasants and the game birds which I keep confined are in extensive, natural sanitary aviaries in which grass and shrubs are growing. The small birds have the run of the bird house and aviaries which have every modern appliance for the proper care of the inmates.—
G. D. Tilley.





THE RESIDENCE OF G. D. TILLEY, NATURALIST, AT "THE PHARM," DARIEN, CONNECTICUT.
Main house at the right; annex at the left; servants' quarters in center at the rear a very ideal arrangement for convenience and comfort.

A HOME NEAR TO NATURE IN ORNITHOLOGY AND OOLOGY.

I have always been very much interested in wild birds, and for the past ten years have made a deep study of ornithology and oology, spending a good part of the time in experimenting with birds in general and making a study of their habits and diseases, of producing hybrids and of acclimatization. I have also devoted several years collecting books on the subject, and have one of the best libraries on birds in the State.—*G. D. Tilley.*



THE GUIDE TO NATURE

EDUCATION AND RECREATION

VOL III

MAY, 1910

No. 1



The Home of G. D. Tilley, Naturalist

BY EDWARD F. BIGELOW, ARCADIA: SOUND BEACH, CONNECTICUT



OME naturalists go to nature, though they travel all over the world for it; others make their homes near to nature, even if they encamp in many places. Still others stay at home and in their natural environment believe and practise the old time saying that "It is a wise naturalist who knows his own parish," or in detailed and prolonged study agree with the great Linnaeus who placed his hand on a bit of moss and impressed his pupil with the great amount and value of knowledge therein by the statement, "Here is sufficient material for the study of a lifetime." Thus we have represented the three classes as follows:

1. Those who travel in all parts of the world.
2. Those who stay at their homes.
3. Those who give prolonged and

detailed study, even "a lifetime," to some commonplace or rare object of nature.

Mr. G. D. Tilley is a naturalist who combines the spirit of all three. He is "in touch with bird men all over the world, and has agents in many of the principal European cities." Since boyhood he has studied nature at his home near to nature in Darien, Connecticut, and lastly, and most important of all, he gives patient, untiring, detailed study to whatever he has under consideration.

Some forms of bird life he has studied as Linnaeus advised regarding the bit of moss in hand—for a lifetime, and, what is more important, he never loses his enthusiasm, he never gives up, he never will be a "has been," never will say, "Oh, I used to be." Each thing accomplished is not a slip down, but a step up. And I predict



A VIEW OF THE MAIN HOUSE FROM THE EAST.

At the east of this is a valley lawn bordered by a rocky ledge.

that it will always be so. He agrees with Dr. Henry Van Dyke:

"Let me but live my life from year to year,

With forward face and unreluctant soul,

Not hastening to nor turning from the goal:

* * * * *

"So let the way wind up the hill or down,

Through rough or smooth, the journey will be joy;

Still seeking what I sought when but a boy,

New friendship, high adventure, and a crown.

I shall grow old, but never lose life's zest,

Because the road's last turn will be the best."

He is well permeated with this spirit which makes "naturalist" after his name seem fitting.

It has therefore seemed appropriate to me to select him as this month's sub-



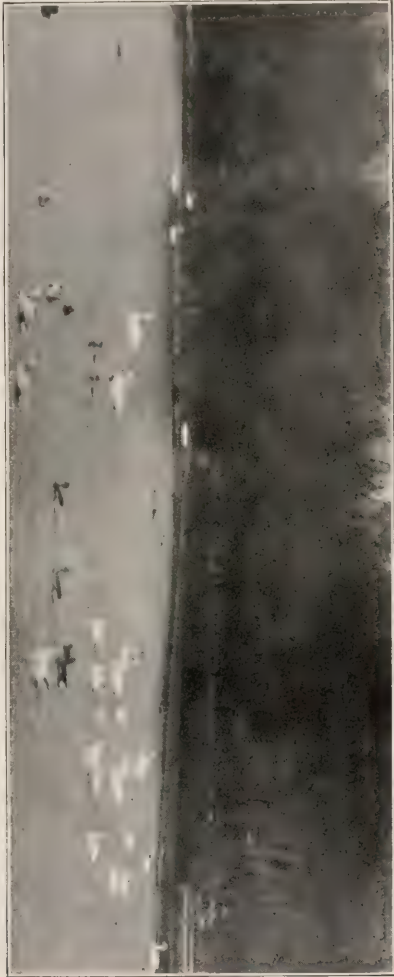
THE VIEW OF THE PICTURESQUE LEDGE IN THE REAR.

The lawns are well kept with the "roughness of the wild" in two massive ledges.

ject for our "Homes Near to Nature," because Mr. Tilley is known in all parts of the world as a naturalist, and locally as an honored citizen of this part of Connecticut's shore.

It is true, let us admit, in the naturalist point of view, that he does not hold a yardstick against a row of books

A SECTION OF A PANORAMIC VIEW OF WATERFOWL IN THE LAKE.



PANORAMIC VIEW OF A SECTION OF "THE PHARM." Viewed from a hill at the west.



of which he is the author, nor has he delivered a vast amount of oratory on many platforms. His claim to the term, naturalist, is not in words, words, words, but in doing things that are worth the doing. Some one has truly said that the best naturalists never write or recite, but delight.

When I walked into Mr. Tilley's office, carrying camera, tripod and notebook, and remarked, "I've come to



THE WINTER SWIMMING HOLE.

When the ground is covered by snow, and most of the pond by ice.



THE WOOD DUCKS ARE HAPPY IN A SUNNY CORNER.

They come out for sundry reasons.



A SPRINGTIME, EASTWARD VIEW OF THE LAKE, SHOWING BOATHOUSE.

The waterfowl go in for divers' purposes.



AN INVITING, MIDSUMMER VIEW FROM THE ROAD IN THE PARK.

write you up," it was highly characteristic for him to reply, "Make yourself at home anywhere on the premises. I'm busy to-day." His thought was wholly on his work and not on himself.

He was busy the next day, and the next, for in all I have spent nearly three days on his extensive premises, and had conversation with him for about ten minutes, and even then he said not a word of himself.

I several times repeated the request that he send me some data for the article. Later I emphasized the request by telephone and by letter. I specified exactly what was wanted, made suggestions and even submitted an outline: to tell the readers how he became interested, what pleasure he finds in it, why others should do the same, what results he has achieved and what are desired, etc., etc., ad libitum. After about a week I received the few lines



SCENERY VARIED AND PLEASING TO THE EYE.



VIEW TO THE SOUTHEAST FROM THE TOP OF THE HILL ON NORTHERN PART OF "THE PHARM."

from which is the quotation at the top of the first page of this department, "Homes Near to Nature."

I am relating this brevity of words and extensiveness of work because they best portray to our readers the characteristics of the man. He is so persistent and painstaking a worker in nature that he has no time for anything but work.

He started some twenty years ago with a couple of birds and gradually

increased the stock until he now has sixty acres devoted to the feathered tribe. He has probably the largest and most complete collection of rare birds in America. Many specimens on his grounds cannot be seen elsewhere, not even in the larger zoological parks. It has required, as will be readily seen, a great amount of work to develop so large an interest in "available ornithology."

For many years the collection was



LOOKING TOWARD THE SOUTHWEST FROM THE SAME POINT.



GIANT SARUS CRANES FROM INDIA.

kept purely as a study and a hobby, though the latter term hardly expresses the situation which is better described by saying that Mr. Tilley is an ornithologist for the love of it.

Some three years ago he received so many inquiries for rare birds from those who knew of his favorite line of study that he decided to keep a collection on a commercial basis, in addi-

tion to that kept for home ornament and private study. This new departure he advertised in leading magazines and exhibited at various fairs and live stock shows throughout the country. The result has been just what might be expected—he is supplying the largest private estates and public zoological parks throughout the world with rare birds. The fact that during the past



PARADISE CRANE DANCING.



A CHOICE QUARTETTE OF MUTE SWANS.

few years his poultry has won several hundred ribbons and cups might give one the impression that he has specialized therein, but the real facts of the case are that he has devoted even more attention to swans, cranes, peafowl and other ornamental birds.

As has previously been stated, while he is not generally known as a voluminous writer on nature or any phase

of it, he frequently contributes articles to the magazines, and for years he has been collecting data of great value for two books which will undoubtedly be authoritative in their lines. Their value and attractiveness will be greatly enhanced by some choice photographs, an aid in science much utilized by Mr. Tilley.

He devotes the most of his time to



RARE PINK EUROPEAN PELICANS.



THE PEACOCKS ARE SO TAME THAT THEY LAY SUNNING THEMSELVES BY THE PATH AS I WALKED ALONG.



A RUSTIC, TANGLED, WILDWOOD ENVIRONMENT FOR HIGH GRADE FOWL.



A CORNER IN THE "SUNNING PLOT" NEAR THE LAKE.



A VERY FRIENDLY SWAN.

careful study of his birds at home, but makes annual trips to Europe to collect rare specimens and to look after and establish agencies.

* * * * *

As I roamed about Mr. Tilley's grounds with my camera, I was more and more impressed with their extent—especially as my first visit was made



FLAMINGOES—THE LENGTH OF LEGS WAS TOO MUCH FOR THE CAMERA.



LOVING AND CHOICE COCKATOOS.

on one of the unseasonably warm days in the early part of April. In the shipping department it was surprising to note the large number of boxes and crates with foreign labels. It was learned, upon inquiry, that shipments from abroad are received almost every week.

Thus has a liking for birds and the consequent study of ornithology developed its business phases. Some one may tell us that we are violating the



MR. TILLEY (IN FOREGROUND) GIVING PERSONAL ATTENTION TO GARDEN WORK.

ethics of good journalism by exploiting a business in our text pages. So we are "exploiting" and so would we exploit the business of a Thoreau, a Burroughs or a Gibson. Whosoever finds out things about nature and makes the things and facts ascertained more available to others comes legitimately within the highest sanction and aid of *THE GUIDE TO NATURE*. As I wandered around the extensive grounds devoted to this "business," I could but wish

that every nature lover would cultivate some phase of the work and study there in progress. The commercial phases have only increased the scope and possibilities. It still is essentially a study, with the addition of making available to others the materials of that study. It is none the less missionary work because it contains a financial element. It is largely because the entire establishment is well financed that it meets with universal approval. The



MR. TILLEY (AT THE RIGHT) AND HIS SECRETARY, ATTENDING TO EXTENSIVE CORRESPONDENCE.

money expended is sufficient to provide roomy cages, spacious yards and an extensive lake.

The birds are well fed, lovingly cared for and consequently happy. Their homes are as near to nature as is that of their owner.

Not all of us can keep so many birds and make them as happy as can Mr. Tilley, because the most of us cannot devote so much time and money to their care. But all of us can copy his example in quality if not in quantity. Keep only as many as you can thoroughly study and efficiently care for, and keep just as good quality as you can afford. There is great satisfaction in doing even a little if that little is done well.

One more thought came frequently to mind as I strolled through the grounds with my camera. Here lives a biologist. Biology is the science of

life, and a biologist is one who studies that science. One who studies a swan or a duck in the right spirit is as truly a biologist as one who peers through a fifth-inch objective at daphnia or cyclops. Both are studying swimming creatures. Isn't it absurd to magnify the science and the scientist in proportion as the swimmer is minimized? Mr. Tilley's lake is a larger aquarium and his grounds a more extensive laboratory than the usual accessories of a biologist. But large or small it is the spirit that counts; not where, nor the size, but how. We are glad to hold high and to exploit to all AA members and other students and lovers of nature, Mr. G. D. Tilley's example as a naturalist and a biologist, and to tell the readers of *THE GUIDE TO NATURE* at home and abroad that here at Darien, Connecticut, is a home near to nature in location, spirit and practice.



Spring Flowers.

BY EDMUND J. SAWYER, SCHENECTADY,
NEW YORK.

However well rounded the year, however gradual and continuous seem to be the waxing and waning of the seasons as we look back to them, the natural objects of wood and field do not convey such an impression. Sitting thoughtfully at home, we liken the first flowers of spring to the first fall of snow. First an odor in the wood or field, a sparkle of frost in the autumn air—a beginning, a prophecy. We speak too arbitrarily of nature's prophecies. She knows chiefly fulfillments. From bud to fruit is a series of fulfillments.

Yes the tiniest blossom of May is an end in itself. The first windflower is a consummation. The bluebells which we pluck for a buttonhole need no apol-

ogy, and that is why we pluck them. It is the same with the spray of apple blossoms which we bring from the orchard; its beauty is perfect, complete. A reflection on the fruit, to which it may seem to point, cannot add one jot to its present charm. Such a consideration rather tends to dispel this charm. The beauty of the fruit is largely a beauty of its practical utility. The beauty of the blossom, to me, is beauty for its own sake; it is beautifully unpractical. It is the crystal pure beauty, so evidently transcendent in the flowers, which to me constitutes the flowers' real and most peculiar charm.

We Americans are criticised for our materialism. One of the saddest things that I have known was the embodiment of such materialism in an otherwise specially attractive child, and due, no doubt, to parental influence. I took

this girl of eight or ten years with several other children for a walk in the country. We saw many birds and several nests—one of the latter, as I recall, a chipping sparrow's with its tiny blue eggs. It was pitiful, beyond my power to tell, to hear this child's instant and invariable question about every bird and flower and nest: "What good is that?" And this was the one you

Among the flowers are wonderfully varied forms; they carpet the ground in endless patterns. The vines of clematis, bittersweet and woodbine twist and wind into almost every conceivable shape and form of scroll. It would seem that in nature our every possible whim for the pleasing in form and line is somewhere provided for. But they who seek the \$ sign are not likely to find



A REVELRY OF BLOODROOT.

"After its charms have been displayed, up rises the circular leaf-cloak."

Photographed by Geo. O. Stoddard, Newtonville, Massachusetts.

would have picked out among her playmates for the poet—a slender girl with lustrous eyes and long dark curls. She had but one standard for a grocer's cart and a nest of bird's eggs. Failing to see that the birds were directly concerned with our purely material economy, she had not the least observable pleasure in them. It is not conceivable that such sordidness in a child is natural.

it here though they search till doomsday. Thank God for that.

He must be hard at heart, indeed, who can quite resist the uplifting influence of wild flowers. As a boy one may roam the woods, bent on the destruction of squirrels, the collecting of birds' eggs and on vandalism in general. He little heeds the anemones, bloodroots and hepaticas which he treads underfoot or, at the best, gathers

for his buttonhole as thoughtlessly as he would hack off the tail of a chipmunk. But these wild flowers, if you will, they do not forget him and his deeper needs. The sure years kindly winnow away much of the boy's ruthlessness, but as surely and kindly they spare and foster the memory of the fair flowers. This is experience, not fancy. Ah! it is often well for us that it is not we who decide what shall most inspire us, mold our feelings and affect us the longest and most deeply.

Let us then go to the spring woods. If we "have time" so much the better, but the thing is to go. The soft earth heaves with life and exhales sweet wild flower fragrance. Even the veery is at hand, just a little removed, it may be, into the hemlock shade. His voice is better than that of a Stradivarius violin and, like that of any violin, it improves with time.

Search for the bloodroot and arbutus. Jack-in-the-pulbit is here, too, and what an array of violets! Oh! there are enough kinds of flowers though not one to spare. Skirt the little woodland pools, not forgetting to gaze into their limpid depths and see the trees and leaves so wonderfully reflected. Here we find dog's tooth violets and liver-leaf. We used to know the latter by the simple name, Mayflower. Years after it was time enough to learn the more accurate term, hepatica.

Coming out into a glade where ferns and berry bushes run riot, we find, among the graceful young fronds of the former, many a cluster of the large blue violets. They seem fond of looking at their lovely color in the great mirror above, for I find them doing best in the open where their view of the sky is unobstructed. And such a sky as this above the glades in the May woods, smiling so softly, and so deeply, beautifully blue!

Surely it is a pleasure such as heaven may happily share—to hold communion with nature in the month of May and feel through all the being, with budding trees and singing birds, the gentle forces of the spring waking and stirring. Unconsciously the calous

that care has made is softened through. Our minds, our hearts, our souls are wooed and won again to childhood's freedom from all thought and care. The flowers and nature take us back to learn again the songs of brooks and birds, to sing with them and to feel that we are kin.



Garden Seeds.

I love to hear the bluebells chime,
And little cowslips moo,
Of tiger lilies roaring I'm
A constant lover, too.
But best of all the garden sounds
To which I love to hark,
Is when at eve I go my rounds
The Johnny-jum-pups bark.

—Harper's Weekly.

To the Terrestrial Globe.

(By a miserable wretch.)

W. S. Gilbert.

Roll on, thou ball, roll on,
Through pathless realms of space
Roll on!
What though I swallow countless pills?
What though I cannot meet my bills?
What though I suffer toothache's ills?
What though I swallow countless pills?
Never **you** mind!
Roll on!

Roll on, thou ball, roll on!
Through seas of inky air
Roll on!
It's true I've got no shirts to wear;
It's true my butcher's bill is due;
It's true my prospects all look blue;
But don't let **that** unsettle you.
Never **you** mind!
Roll on.
(It rolls on.)

The Wild Columbine.

By EMMA PEIRCE, NEW YORK CITY.

Close about my heart you twine,
Happy little columbine,
As I linger with my book,
Dreaming in your peaceful nook.

Trailing brightness on your way,
Lighting up the dull rock's gray,
You your share of gladness bring
To the largess of the Spring.

Like a sudden ray of hope
Gleams your pendant from the slope;
Memory will hold you dear
Through the pathway of the year.



STRINGS OF TOADS' EGGS.

Strings of Toad's Eggs.

The egg masses of toads may be readily distinguished from those of frogs, both now so common in almost every pool, by the fact that the toad's eggs are in strings while those of frogs are in jelly-like masses about the size of one's fist or a little larger.

It is exceedingly interesting to bring home both kinds of eggs and place them in almost any form of dish and see the gradual elongation of the little black spheres and the emersion of the tadpoles. Under a lens each little jelly-like globule is seen to be a cell wherein each of the bodies turns slowly around. The tadpole in this stage reminds one of the chocolate mice sold at the penny

candy counters. A little later they develop tails and then it is extremely interesting to watch through this transparent portion the circulation of the blood. The accompanying illustrations show the early stages of the development of tadpoles and are given as a suggestion of an interesting nature topic well worthy of careful investigation.

Henry David Thoreau.

His soul was made for the noblest society; he had in a short life exhausted the capabilities of this world; wherever there is knowledge, wherever there is virtue, wherever there is beauty, he will find a home.—Ralph Waldo Emerson.



THE TADPOLES REMIND US OF CHOCOLATE MICE.



The Heavens in May.

BY PROF. ALFRED MITCHELL, OF COLUMBIA UNIVERSITY.

The crucial days in the history of Halley's Comet are now at hand, and each day during the first half of May will bring it closer and closer to the earth, and make it brighter and brighter to our eyes. We wonder whether it is going to disappoint us, and be a less brilliant object than we had hoped. So much has been written about Halley's Comet, its interesting history, its verification of prediction, its close approach to the earth in the month of May, the comet passing across the face of the sun and the earth sweeping through the tail, that even those never before interested in astronomy have been keyed up to expect a grand and glorious sight. Is it going to live up to its reputation? Or is it to present a public appearance without a magnificent tail? At the present writing (April 15), it is impossible to say with certainty what will happen a month hence, but the present prospect is not alluring. As the readers well know, the comet passed on the far side of the sun on March 26, and then moved into the morning sky. On April 8 the comet was far enough from the direct rays of the sun to be seen. On the morning of April 12, at 4:30, Professor Barnard saw the comet on a dawn-lit sky, rather faintly in the 5-inch guiding telescope of the Bruce camera, and it then did not show a trace of tail; and this, too, but eight days from perihelion when the comet's tail itself is brightest. It is altogether likely that the comet was to have been visible to the naked eye, if it has been projected on a dark sky—but we must confess that we are disappointed in its feeble showing. Still the comet will increase fortyfold in brightness by the time it first comes into the evening sky, and no doubt it will then be a fine object. However, even though it may be fainter than we had expected, it should readily

be visible to the naked eye on any morning during May up to and including the sixteenth. To find the comet during this time, get up about an hour and a half before sunrise and look a little north of east towards where the sun is to rise.

As has been pointed out repeatedly, the comet is to transit the face of the sun during the night of May 18. The exact time that this will take place is a little uncertain, but the latest calculations seem to show that the comet will be 4 or 5 secs. north of the centre of the sun's disk about 11:20 P. M. Eastern Standard time. The comet will encroach on the western limit of the sun half an hour earlier, and the total time of transit will be almost an hour. According to these figures, the sun will have set not only in the Eastern part of the United States, but on the Pacific slope as well. One would need to go to the islands of the Pacific to observe the phenomenon. And what would we see if there? The head of the comet according to measures of Professor Barnard is over 200,000 miles in width. This, only fourteen million miles away projected on the sun six times farther off would be sufficient to cover up the whole sun. But the head of the comet as a whole is so rare that it would probably obstruct so little light, that it will be impossible to detect any change in the sun's appearance.

ECLIPSE DURING MAY.

The eclipse of the Sun, which takes place on May 9, begins about 3:30 A. M., Eastern Standard time, will not be visible anywhere in the western hemisphere.

But if this eclipse is invisible to us, another on the night of May 23 and morning of May 24 will be visible throughout the United States and Canada. This will be an eclipse of the moon, which will begin and end as follows, the times being given in Eastern Standard Time:

Eclipse begins, Moon enters shadow at 10:46 P. M.

Total Eclipse begins at 12:9 A. M.

Middle of the Eclipse at 12:34 A. M.

Total Eclipse ends at 1:00 A. M.

Eclipse ends at 2:22 A. M.

The magnitude of the eclipse—1.1 (Moon's diameter—1.0).

At localities where Central time is kept, subtract exactly one hour from the above time; if Pacific time, subtract three hours.

morning, and is visible for a couple of hours before sunrise. As may be seen from the diagrams in the April issue, Venus comes very close to Halley's comet, in fact as close as the earth does, for on May 2 the comet and Venus are fourteen million miles apart. Venus does not pass through the comet's tail, however. As seen from the earth just before and after this date, comet and Venus will present a fine appearance together in the morning sky. Venus

EVENING SKY MAP FOR MAY

MAY MOON PHASES

LAST QTR., MAY 2.
NEW MOON MAY 9
FIRST QTR., MAY 15.
FULL MOON MAY 24.
LAST QTR., MAY 31.

By Prof
S. Alfred Mitchell,
of
Columbia
University



Those who watch the eclipse will notice that though the moon has passed into the earth's shadow it will still be visible, due to the bending of the light through the earth's atmosphere.

THE PLANETS.

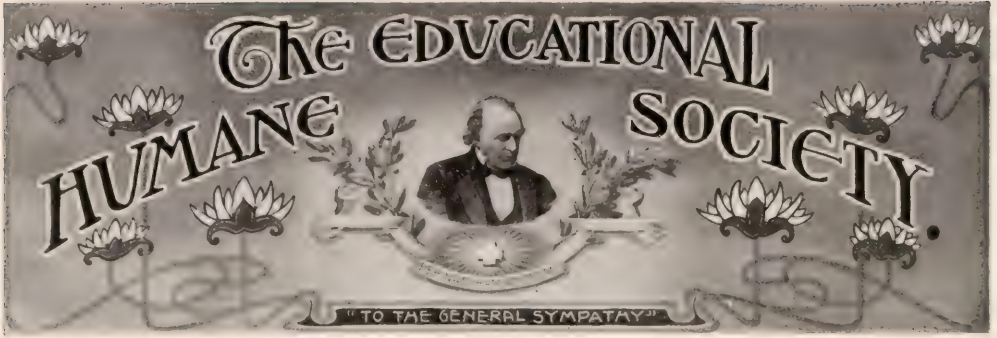
Mercury will be at her greatest elongation East of the Sun on May 2 and will be visible in the western sky on several days before and after that time. Venus is brilliant towards the east in the

when closest, will be 11° south of the comet.

Mars is still seen, low in the west in the early evening.

Jupiter is in a fine position, and may be well seen with a small telescope. Notice the bright star near Jupiter, which is the double star Gemini in the constellation Virgo.

Saturn and Uranus are unfavorably placed to be well seen. Neptune may be found from its place on the map by those who may have a good telescope.



A Chapter of The Agassiz Association. (Incorporated 1892 and 1910.) "The Law of Love, Not the Love of Law."

Is It Best to Be Merciful?

No, it isn't. Note the form of the question—"best," superlative, a choice among many, yes, among all things. If the question had been "better," comparative—between mercy and cruelty—then most members of the human race have advanced so far as not to hesitate in the choice. Mercy is better than cruelty.

But it is not the highest ideal. "Mercy," the dictionary makers tell us, is forbearance to inflict harm under circumstances of provocation, when one has the power to inflict it." Consider especially that word—*forbearance*; it implies a tension like that of an extended elastic band. Its constant tendency is to change its position. So forbearance implies that reason or will or some out side influence has pulled the man away from the normal state of cruelty. Everytime a child or an adult of kindly disposition is asked to be merciful or to join a Band of Mercy, his kindness is insulted, and his personality to a certain extent is degraded to the level of mankind when it was emerging from savagery, and when harmony with the various forms of creation was a rare or undeveloped virtue.

In a popular drama, "The Dawn of To-morrow," there is a character, representing the poverty stricken woman of the slums of London, who boasts with pride of her blackened eye and her various bruises, inflicted by her husband, as proof that she is respectable, a married woman of good standing, with a marriage certificate that gives her husband the right to pound her. In such a state of society from such a point of view,

one can imagine that while her husband might not grant her request for mercy, yet he would probably not regard himself as insulted by such a request, simply because it applied to the ordinary, habitual condition of the family affairs, and to his habits of thought.

But in most modern society, try a few husbands by asking them to form "Bands of Mercy to Wives;" request a few to pledge themselves not to strike their wives, to use their influence to induce other husbands not to practice the pugilistic art on their wives. These husbands would doubtless refrain from thus treating their wives, but not you!

But why the humorous incongruity? Because modern society has advanced beyond the days of savagery and above the standards of the London slums.

But what a sarcasm on the age, in relation to other forms of life, when "Bands of Mercy" still do not seem incongruous or even insulting.

Again I insist that it is not best to be merciful. Mercy savors of savagery and low ideals.

If the incongruity is not sufficiently impressed upon you, beseech our Mr. Butler to be merciful to his fantail pigeons, argue with our Mr. Ellard that he should not be cruel to his cavies and rabbits, or try to induce our Mr. Coe to have a kindly feeling for his shrubs and trees!

But what, you inquire, do we want you to do. Thus far, you may say, we have argued negatively.

We want more loving, enthusiastic seeking for knowledge of nature in all her forms—not more coaxings, or

pledges, or threats, or ridicule, or deprivation of badges, or laws for the infliction of punishment and the angering of the ignorant and the misguided. Not even songs, or poems or recitations are needed, but more definite knowledge of nature and more intimate relations with all her forms. It is possible to be cruel even to the stars and thereby to one's self. Mercy not always "droppeth from heaven," but sometimes goes up, in knowledge and in higher ideals.

We plead for Chapters for the study of the great book of nature; we seek your cooperation in promoting the work of The Educational Humane Society of The Agassiz Association.

It is through knowledge, and the heart development that follows knowledge, that we shall find mercy to be not the best, but rather, in the words of the kind hearted scientist whose name we bear, we shall learn that through more knowledge we may "exhibit the whole animal kingdom as a manifestation of the Supreme intellect," and shall then be "inspired by a purpose as animating to the general sympathy as was the religious zeal which built the Cathedral of Cologne or the Basilica of St. Peter's." It therefore is not "best" to be merciful. But it is best to live morally and restfully without tension, in ever increasing knowledge, and in that realm towards which mercy draws the undeveloped or the savage.

From the Dog's Point of View

(A LETTER FROM "JO.") (JOHN ANDERSON.)

To My Mistress:

I am enjoying life in this part of Canada very much, and am quite sure that I will never want to leave it. Perhaps you wonder how I spend my days; but before I enter upon any description, let me tell you about the second big event in my career—my birthday and my presents, etc. Well, first comes yours (and for all I wag my tail), a delicious, very large bone, from the hand of Aunt Helen. It certainly was choice and of a rare shade, exactly suiting my longings and dark complexion and kept me busy for many hours.

Aunt Fanny's present was some big pieces of cake. Now next to bones I love cake, providing the eggs and the

other materials of its construction are fresh and well put together. Then all the women folks gave me lots of hugs, possibly kisses as well, but I am never sure that the latter are being given unless I am giving them myself. Also there was your letter and one from Aunt Fan addressed to me—"Jo" Stevenson, care of Miss Jack, Wright street. These I carried in my mouth to Aunt Helen for her to read them to me, and the men-



"THE SENDING OF YOUR LOVE MADE MY HEART BEAT WITH A MOTION QUITE DIFFERENT FROM THE ORDINARY."

tion of bones and cakes made my mouth water while the sending of your love made my heart beat with a motion quite different from the ordinary. I am only a dog, but my love is stronger (I am sure) than lots of humans.

But what is a birthday unless there is a birthday cake, and, of course, I had one—made and cooked by Aunt Helen and flavored to suit the king's taste. It stood on one of those old pretty china cake dishes, with a lighted wax candle on top, and was decorated with green leaves and cherry-colored blossoms, and with the other china and on the old mahogany table looked well and it tasted perhaps better than had it had no fancy fixtures, or than had it been thrown on the floor instead of my catching it in the air in my mouth.

To live in the world of fashion you must have at least some accomplishments—even a dog must, especially when, like me, they are thoroughbred. But there are lots of curs that put on so many airs that they quite overdo it. Such animals are beneath my notice.



"I ALSO LOVE TO GO OUT WALKING WITH ANY OF THE FAMILY."

But you would like to hear how I pass my days. Well, the first thing that happens in the morning after I wake up is a feeling of a great void within. This makes me think of the cook whom I hear upstairs lighting the kitchen fire. I am soon with her, and she, much to my delight, gives me a bone or a soda biscuit (at home in the states they call them crackers, don't you know). Anyway this light repast seems to fill a want within, and I am then ready for anything. I go to the door, bark, and am let out. I just dote on cats; there are always some to be found near home, so that I generally put in some time every day poking

round the near-by back yards. In this way I am sure of seeing some cat tails.

The Scotch people always want to know the ins and outs of everything. This doubtless accounts for my being drawn towards every dog I meet—not drawn in the manner of making eyes at them in anything of a flirtatious way, but just to smell them over and find out for myself if they are O. K. But I am very particular about the dogs I associate with; for instance, there are a family of Boston terriers who live across the street. They do their best to be friendly with me, as I would like to be with them—if I only could; but they do make me tired. Possibly if they were called New York terriers I might have different feelings towards them, but even dogs have their likes and dislikes. There are a few rather decent fox terriers I play with; they are jolly fun—quite a different set of chaps to the Irish terriers, who are always trying to start a quarrel. But I have made heaps of friends and possibly some enemies. I hate to be rolled over in the mud by some dog bigger than myself, yet I have been—though I always make a point of making as big a howl over the affair as I possibly can, because then I am sure of an extra amount of sympathy. The right kind of sympathy given at the proper time, I have always found very soothing to the nerves. When I first came here I used to stay away from home for long periods; but I don't often now, because there are a number of nice soft sofas at Wright Street. I do love to sleep on any of them. I also love to go out walking with any of the family. Sometimes I am taken out to Rockwood Park and Lilly Lake, where there are a lot of swans and Canada geese. They are quite tame and come close to shore, and it is great fun to stand on the edge of the bank and bark at them. They are so silly, twisting their long necks and making their hideous noises. Then there are the two black bears. The first day I was taken to see them I was awfully frightened. I knew they were not nice long before I got near them, as they did not smell like dog or attar of roses. Of my own will I would not be induced to go near them, but I was lifted up and looked at them from a dis-

tance, though I did not see any enchantment.

I get dinner at one o'clock, and supper at seven, prepared by my good friend, Aunt Dearwyne. She understands the business. I must be pretty good, because many times every day I am called "a good little dog!"

Tuesday is visiting day on Wright Street, and every Sunday there is five o'clock tea. On these days I always make a point of being at home. I am so fond of cake.

And in conclusion, I hope, dear mistress, you are feeling better for your rest; but do not lose your rest and sleep fretting about me, because I am very well and happy with my Jack and Mackenzie friends, and with oceans of love I am

Forever yours,
"Jo."

The Lesson of Kindness.

BY MRS. I. L. DARRAGH, NASHVILLE,
TENNESSEE.

Those of us, either as parents or teachers, have had to do with the training of children, know well its difficulties. How hard it is, to make a dishonest child, honest; a selfish one, unselfish; how near to the impossible it is to extract his ugly temper. But there is one lesson that children, with few exceptions, will learn when taught—the lesson of kindness. I own I tremble for the child who does not learn it easily and quickly. He is either mentally lacking, or a pervert to start with. I have in mind a very bad boy, whose career I was watching with interest. I saw him once on the play-ground, tear off the legs of a grasshopper and throw it on the ground. He lived to fill a murderer's cell. I recall another that I at times feared was hopelessly bad. He was early taught the lesson of kindness and it proved the heaven for the lump. At the dawn of manhood, the responsibility of a widowed mother

and orphaned sister faced him. He bravely shouldered it, and they became the objects of his tenderest solicitude. The mother builded better than she knew. Parents should watch for the first appearance of cruelty and nip it in the bud. It starts in ignorance and is easily corrected by knowledge. Just now the parents and teachers of our country should bend their best efforts toward counteracting the pernicious effects of the example of perhaps the world's bloodiest butcher, Theodore Roosevelt. The very superabundance of animal spirits of the man makes him attractive to the immature mind and the undeveloped character of the youth of the land and the evil effects of such an example will be far-reaching. For many months the world has been regaled at regular intervals, with the latest news from the scene of carnage, until the soul sickens and cries out "How long, O Lord, How long!" The marvel of it is that He does not reach down and stay the bloody work. A mental vision portrays him as with bulging eyes and savage teeth, he stands gloating over the quivering, writhing agony his shot has brought to his feet—a scene from Dark Ages. The pity of it is, that he has with him, his young son, who will doubtless follow the footsteps of his father in his thirst for blood. Geo. T. Angell's whole life was spent in efforts to better the condition of helpless animals. His body was followed to the grave by a long line of things whose language ignorance cannot understand. How appropriate if Roosevelt's cortege could be composed of shrieks and groans and agonies of his dying victims.

Special Offer.

We want to double the membership of The Educational Humane Society within the next two months. Any one sending a Corresponding Membership in this Chapter before July 1, 1910, will receive FREE a copy of "The Animal Lover's Birthday Book."



THE CAMERA



The Camera and Out-of-Doors

BY E. M. HUNTSINGER, HARTFORD, CONN.

The season for outdoor photography is at hand, a real joy to the lover of the beautiful in nature.

Photographing wild flowers, shrubs, plants, etc., is interesting because it presents a variety of possibilities beyond the reach of the sky-light. Better than all else, it takes one out-of-doors and invests a walk with constant interest and genuine pleasure, and sometimes profit.

ment of selection. Here study and observation count. Even the amateur with limited experience knows the mechanical features of the process and how to focus his attention to the smallest of details. Any boy who can make a successful exposure of an ordinary landscape and properly develop the plate, can successfully expose and develop plates of flowers, shrubs, trees, etc., if he is reasonably careful.

The devices necessary to photograph flowers successfully in the house after



THE LILY: BLOOM, OPENING BUD AND BUTTERFLY.

There is a wide range of possibilities in photographing blossoms and flowers as the seasons come and go. The maples, elms, and magnolias and some small shrubs have already made their bow and have side-stepped.

The photographing of flowers is not so much a matter of mechanical skill, the exposure of the plate and its development, as it is taste and judg-

they have been brought from their habitat requires a genius in arranging them. It demands a considerable degree of artistic feeling. It is no joke to pose flowers naturally which you can readily prove by a trial. This inability to beautifully arrange or group flowers is due largely to the fact that we do not carefully study their arrangement before we gather them.

Then too, the flowers are so sensitive and are so liable to wilt before we are quite ready to make the exposure of the plate; moreover the slightest air-draughts in the room cause the flowers to vibrate and thus blur the negative. Indeed, sometimes while the plate is being timed the flowers continue to wilt and spoil the plate.

The boy who goes out photographing wild flowers, shrubs, plants, trees, etc., should have a congenial compan-

ion as an assistant; he also needs two or three grades of cloth for backgrounds attached to stakes that may be pushed into the ground to hold the background tightly stretched and in place. He needs also some kind of windguard to enable him to make time exposures, when the light is weak. With these two safe-guards it is an easy matter to focus carefully and to arrange the subject systematically upon the groundglass. Trim away the



A MASTERPIECE IN FLOWER AND BUTTERFLY PHOTOGRAPHY.

By Mr. Huntsinger.

"undesirable stuff" that would detract from the picture. Don't hurry, but study your subject and examine the groundglass to see that the flowers assume the right location upon the plate. It is a comfort to know that the subject will not wilt while timing the plate. Then too, in photographing flowers in the natural state, if one is dissatisfied with his first effort he can return and make further efforts. Success is within your grasp.

If the boy contents himself with photographing flowers from his own or his neighbor's garden, he would better cut the flowers late in the afternoon, place the stems in plenty of cold water and set the vase in the coolest possible place in the cellar. In twelve hours or say by nine next morning the flowers will have recovered from the shock. They will also have absorbed sufficient water to stand up pluckily to the task of arranging them. Take all the time you need, your flowers are now patient. Indeed, flowers thus treated will stand photographing far

better than will flowers newly cut—especially is this true of flowers with a woody stem.

But the real secret of beautiful flower pictures lies in the excellent arrangement and natural posing of them. It is best to observe the same laws of massing of flowers on one side of the picture and the same balancing on the opposite side of the picture as one finds in the well-balanced landscape of the artist.

Indeed, to properly pose flowers calls for real taste. When once posed the other fundamental principles of the process are largely mechanical. The boy who wants to do the best work in photographing, both landscapes and flowers, should study such pictures of such noted artists as Corot, Moran, Inness, Millet, etc. Indeed, one can't study such artists' compositions too carefully.

The study of fundamental principles in landscape composition is essential to doing good flower composition.



BY THE QUIET BROOK WINDING THROUGH THE WOODS.

A Woodland scene at Verona, New Jersey.

Photographed by Frank P. Jewett, Orange, New Jersey.



Annual Meeting of AA.

The annual meeting of the corporators and trustees of the AA was held in the office of the secretary, Honorable Homer S. Cummings, Monday, April 11.

The minutes of the preceding meeting were read and approved.

The report of the Treasurer was read and approved, the same to be placed in the minutes:

SUMMARY—CASH RECEIVED.

THE GUIDE TO NATURE	\$2111.81
General: Members' Dues, Contributions, etc.	882.30
From Edward F. Bigelow	300.00
From M. A. Bigelow in Loans for Photographs and Office Coal.....	94.13
From Nellie P. Bigelow	272.40

Total\$3660.64

SUMMARY—CASH PAID.

THE GUIDE TO NATURE Publication Expenses, etc.	\$3037.33
General: Correspondence, Printing, etc.	623.31

Total\$3660.64

April 11, 1910.

The above is a correct summary of cash received and paid from December 15, 1908, to April 8, 1910, inclusive.

(Signed) EDWARD F. BIGELOW.

Subscribed and sworn to before me this 11th day of April, 1910.

(Signed) GEO. S. WILSON,
Notary Public.

April 11, 1910.

This is to certify that I have examined the details of which the above is a summary, and find all to be correct, and that there are no entries for services for Mr. E. F. Bigelow or of any member of his family.

(Signed) CLINTON R. FISHER.

Subscribed and sworn to before me this 11th day of April, 1910.

(Signed) GEO. S. WILSON,
Notary Public.

April 11, 1910.

I hereby certify that I have examined the details summarized above, and find them correct as stated. In my opinion all expenditures have been made judiciously and economically

and in a manner to promote the interests of The Agassiz Association most efficiently.

(Signed) HIRAM E. DEATS,
Trustee, AA.

The President reported the re-incorporation of the AA under the laws of Connecticut. The charter is as follows:



HONORABLE HOMER S. CUMMINGS.
Secretary of the AA.

Article 1. The name of said corporation shall be The Agassiz Association, Incorporated.

Art. 2. The purposes for which said corporation is formed are the following, to wit: the promotion of scientific education; the advancement of science; the collection in museums of natural and scientific specimens; the employment of



DAVID STARR JORDAN.

President Leland Stanford Junior University, California.

Dean of the AA Council.

"Every fact has a meaning. It is a part of the relation of cause and effect; and the great students of nature are those who have been able to see the fact and to look behind it to the principle or law or cause of which it is a visible result. **I regard your Association as one of the most important educational institutions of this country.**"

observers and teachers in the different departments of science, and the general diffusion of knowledge.

Art. 3. The said corporation is located at Sound Beach, in the town of Greenwich, county of Fairfield, and state of Connecticut.

The following officers were elected for the ensuing year:

Edward F. Bigelow, President and Treasurer.

Homer S. Cummings, Secretary.

The following is the full Board of Treasurer.

Corporators: Edward F. Bigelow, Sound Beach, Conn., President and Treasurer; Homer S. Cummings, Stamford, Conn., Secretary; Walter D. Daskam, Stamford, Conn. Other Trustees: Harlan H. Ballard, Pittsfield, Mass.; Hiram E. Deats, Flemington, N. J.; Dr. David Starr Jordan, Stanford University, Calif.; Dr. Leland O. Howard, Washington, D. C.; Rev. Charles Morris Addison, Stamford, Conn.; Dr. George Sherrill, Stamford, Conn.

Mr. Ballard was elected Honorary Vice-President; Dr. Jordan, Dean of Council; Dr. Howard, Naturalist Adviser, and Mr. Deats, Business Adviser and Auditor.

The report of the President was listened to with great interest, and the efficient and earnest work of the President was heartily commended. It was ordered that the report be embodied in the minutes and published in THE GUIDE TO NATURE, and a request be made to the newspapers of Greenwich and Stamford to publish it as a matter of local interest.

Voted to adjourn subject to the call of the President.

HOMER S. CUMMINGS, Secretary.

Leland Stanford Junior University.

Office of The President:

Stanford University, Cal.,

April 5, 1910.

Dr. Edward F. Bigelow,
Sound Beach, Connecticut.

Dear Sir:

Permit me to say another word of encouragement to the Trustees of The Agassiz Association. I am sorry that Connecticut is so far away from the center of things that I cannot be present at your meeting. I want to express again my highest appreciation of your good work, of its far-reaching influence among the young people of the land, and in favor of the desirability of cultivating as a normal joy as well as a religious duty the habit of knowing exactly the living things by which we are surrounded.

Very truly yours,
DAVID STARR JORDAN.

United States Department of Agriculture,
Bureau of Entomology,
Washington, D. C.

April 1, 1910.

Dear Doctor Bigelow:

I have yours of the 30th, and regret that I cannot be present at the meeting on April 11th. I have nothing, however, but the highest commenda-

back to my own boyhood days to realize what a boon such an association would have been to me. We had then but few books; there was almost no one of whom we could ask questions, and those of us who were not discouraged by lack of opportunity to correlate and appreciate the significance of our observations worked in the dark as compared to the conditions that surround young workers to-day. You deserve the support of every one, and you will surely have mine so long as you wish it.

Yours sincerely,
L. O. HOWARD,
Chief of Bureau.

The President's Annual Report to the Trustees.

Arcadia, Sound Beach, Conn.

April 11, 1910.

To the Trustees of the Agassiz Association.

A little more than a year ago, this Association entered upon a new era, in the reorganization of the Board, and in the equipment of Arcadia, provided by one of our members, at Sound Beach, Connecticut, for the greater efficiency of our work. I am confident that the gratitude of all the members for this outfit which came at an especially critical time in the life of the Association is far more than can be conveyed in words; the value more than can be expressed in dollars.

Arcadia has necessitated work somewhat comparable to the establishment of a new manufacturing business, in that we must, first, thoroughly equip and systematize the producing outfit and, second, provide means for distributing the goods to all parts of the world. Only for new knowledge, the results of the experimental work, (and articles and illustrations pertaining thereto) does the comparison of Arcadia to a manufacturing establishment hold true. It is more largely comparable to a banking clearing house in that it takes in and gives out; and still further and even more extendedly may it be compared to a correspondence school, in that it teaches those who wish to learn. But what-



LELAND O. HOWARD, PH. D.
Washington, D. C.
Naturalist Adviser.

tion to express concerning The Agassiz Association under your administration. To foster intelligently a love of nature in young people, and to afford facilities for the gaining of information about natural history to the very many young people who are natural observers and who are so placed that they are not able to make intelligent deductions from what they see, is an aim which deserves the highest praise. And the intelligent and highly efficient manner in which you are doing this is beyond criticism. I have only to look

ever the point of view and the comparison two things must be in perfect working order: first, the equipment—Arcadia; and, second, the methods of distribution—THE GUIDE TO NATURE and other publications. To these two points I have devoted all possible time and all available means, and in these endeavors it affords me much pleasure to report a fair degree of success—perhaps more in many respects than may have been expected. The AA Home and Laboratory (thanks to the contributions and assistance of many members and friends) have been

have. I am positive that a moderately sized observatory here at Sound Beach, so readily available to many towns along the coast, would be of incalculable educational value.

THE GUIDE TO NATURE has met with the most gratifying favor. Many of our members have obtained long list of subscribers. Two thousand copies of each number have been printed, and several numbers are now out of print. We have had calls for many more of this last number (April) than we could supply. The edition for May is three thousand.



THE AA PENNANT: GREEN AND GOLD.

The golden sunshine of the AA on the green fields of nature.

well equipped and are in *complete* working order. Nothing more in these buildings is needed.

The stocking of the grounds, seeding down, and the preparation of the experimental garden will be completed this month. The greatest positive need is a small greenhouse.

Most of our astronomical work is provided at Columbia University and by various astronomers. In the direct conduct of our work, so far as publication is concerned, an astronomical observatory is not absolutely necessary. But, judging from the many personal requests, such an addition would be more appreciated by local members and visitors than anything else that we

The number of pounds mailed at the Sound Beach post office has steadily increased month by month. The receipt for the regular mailing of the April issue shows seven hundred and one pounds. There probably will be, as often occurs, an inter-monthly mailing. The total weight of the May number will undoubtedly be more than a half ton. We have on hand a small stock of various numbers of Volume I, but these are rapidly going out in response to many calls for them.

The advertising patronage has steadily increased, notably with local business houses which not only have recognized the increasing circulation but the worthiness of the Institution and

the Association of which *THE GUIDE TO NATURE* is the official organ.

We have been favored with the contribution of articles and photographs from the best naturalists and scientists of the country—far beyond the capacity of our pages. From the last number several departments were omitted for lack of room. There is no better method of promoting one phase of our Charter of Incorporation, "the general diffusion of knowledge," than by the increased circulation of *THE GUIDE TO NATURE*. We believe this also to be good missionary work in the dissemination of interest in God's works.

Notwithstanding the fact that greater attention has been given during the year to "ways and means," we are glad to report the addition and reorganization of twenty-nine Chapters and the enrollment of one hundred and thirty-two new members—mostly adult.

These are active, enthusiastic and in "good standing." Some of these Chapters are very large. "Park Life" Chapter (No. 1021) of Dubuque, Iowa, has an enrollment of one hundred and sixty-one. Quite naturally you may ask how many Chapters and members we have in all. I frankly reply that I do not know. The record of members was lost previous to my administration. We now have an enrollment of about seven hundred Chapters, but many of these have not complied with my request to render an annual report. Some of our Chapters have grown so large and are doing so good work that they have preferred to separate from the parent body and become self-sustaining scientific societies. Among these are notable the Sullivant Moss Society, Wilson Ornithological Society and a few other well known large scientific bodies. Some members not reporting for several years will again take up our work. It would seem from correspondence with these that there is no exaggeration in the AA current saying that "more than half the naturalists and nature lovers of the world have been or are members of the AA."

It must be remembered that much of my work has been personal, by correspondence, through "St. Nicholas" and

by lectures in many places. By these methods the number of people reached has been innumerable. It is also to be taken into consideration that the AA is primarily for young folks, and so many of these are reached in various ways that it is impossible to make statistical reports.

The experiment of State Superintendency has been made in the appointment of Mr. C. L. Wilhelm, of Baltimore, for Maryland. Mr. Wilhelm is ideally fitted for the position, and I predict that he will be conspicuously successful. If he is, his success will encourage the promotion of other active workers in other places to a State Superintendency.

The success of the Summer School of 1909 has led to plans for a school on a larger scale this year, beginning June twenty-seventh. Particulars will be found in the May issue of *THE GUIDE TO NATURE*.

On our Opening Day, September the eighteenth, hundreds of visitors were shown through the buildings, keeping three ushers busy all day. We have had regularly visiting hours as published in *THE GUIDE TO NATURE*—Sundays and Wednesdays, 4:00 to 6:00 P. M., and many learned personally on these days of our work. All visiting members and contributors have been urged to examine the cashbook. Many have done so—some carefully in detail—and have expressed approval at the use of the money.

Another important plan is the appointment of chiefs of the various departments of science for definite instruction by correspondence. Mr. Alex. E. Wight of Wellesley Hills, Massachusetts, a skilled botanist and lifelong worker in the AA, has been appointed instructor in elementary botany. We are hoping to appoint other special instructors.

To you, my fellow Trustees, I extend most cordial thanks for your hearty support in the executive management, and I congratulate all concerned upon the privilege and honor of co-operating in this larger life and efficiency of a great work.

And further, fellow Trustees, I want to acknowledge the great aid that my elder daughter has been in this work, and to declare that much of the success has depended on her. For more than two

years she has been my secretary and has devoted long days to persistent, untiring, efficient work, without a cent of remuneration. I have also been greatly aided by Mrs. Bigelow who, notwithstanding the cares of a household, has devoted all her spare time to much of the bookkeeping proof-reading and other matters pertaining to all Chapters and memberships. Both have also assisted financially in loans to the AA as shown by the accompanying statement. So long as I am President, we desire to follow the example of our honored predecessor, Mr. Harland H. Ballard, who for more than a third of a century served without remuneration. The joy of doing is sufficient.

Respectfully submitted,
EDWARD F. BIGELOW.

Recent Members.

Mr. A. D. Chandler, Orange, N. J., H.; Miss Louise B. Moyer, Plainfield, N. J., C.; Mr. Frederick Gotthold, Cos Cob, Conn., C.; Professor C. F. Hodge, Worcester, Mass., C.; Professor Fred. L. Charles, Urbana, Ill., C.; Freeman Foster Burr, New Haven, Conn., C.; Mr. William L. Marks, New York City, S. and H.; Mrs. Franklin Couch, Dalton, Mass., S.; F. P. Graves, Doe Run, Mo., C.; Miss Doris I. Neel, South Harwich, Mass., C.

Recent Chapters.

Nature Research Club Chapter, New

Castle, Ind. Officers: President, Clarence Smith; recording secretary, Mrs. Lydia Gardner; corresponding secretary, Mrs. Allegra Bufkin; treasurer, Arthur Osborne.

Baltimore C. Chapter, Baltimore, Md. President and secretary, C. L. Winelm.

The Ely School Senior Chapter, Greenwich, Conn. Officers: President, Helen P. Fairbanks; vice-president, Ruth H. Mallett; recording secretary, Mauricia T. Mintzer; corresponding secretary, Edith Dunnan; treasurer, Helen Morton.

The Ely Senior Junior Chapter, Greenwich, Conn. Officers: President, Margaret Houghton; vice-president, Hope Lincoln; recording secretary, Katharine Smith; corresponding secretary, Eleanore McFadden; treasurer, Mary Lincoln.

Wendell Phillips High School Chapter of Chicago. The officers are as follows: President, Adele Simmons; Recording and Corresponding Secretary, Dorothy Dennstaedt; Treasurer, Clifford Shaffner.

A Chapter Designs An AA Pin.

Chicago, Illinois.

To the AA:

We received your letter welcoming us as a Chapter and thank you for it. The charter and handbook also came safe and sound.



THE ELY SCHOOL SENIOR CHAPTER ON AN OUTING.

Our plan of work is this: we intend to get as complete a collection as possible of all the land and fresh-water univalves in and about Chicago, and to exchange with every country in the world. Mr. Hand, our faculty representative, has already received letters from Japan and California and other places, asking us to exchange, and we expect to make a big success of our

hundred feet high. We "Park Life" boys are not particular, you see, about our mode of eating while in camp. There are no tables, no damask linen, no fine dishes; yet it matters nothing to us, for we like to take our fare as the aborigines took theirs, and enjoy it as much, perhaps more than if it were a sumptuous banquet.

During our excursions we were af-



THE AA BUTTONS, AND THE PIN DESIGNED BY THE CHICAGO CHAPTER.
(Enlarged in the illustration.)

plan. The reason for our doing this is that no one else has accomplished it as yet and we wish to be the first to do it.

I am sending you our Agassiz pin and hope you will like it. The head is that of an owl. The price of the pins is one dollar and fifty (\$1.50) cents each.

If you could offer any suggestions regarding our shell plan, we should all be most thankful for them.

Yours respectfully ,

DOROTHY DENNSTAEDT, Secretary

Report of "Park Life" Chapter.

BY ROBERT E. YOUNG, JR., SECRETARY,
DUBUQUE, IOWA.

The accompanying photograph is of a group of Professor Horchem's "Park Life" boys, a Chapter of The Agassiz Association, doing what they most like to do—eating. The photograph was taken from a high place at a distance of several miles from Dubuque, Iowa, and overlooking the beautiful Mississippi, where at the rear towers in lofty grandeur a bluff three

forded many opportunities for nature study, and many of our boys came back to the city feeling as important with their newly acquired knowledge, as if it were the wisdom of Solomon himself.

The many trees, oak, elm, ash, hard and soft maple, birch, honey-locust, coffee-bean hackberry, walnut, butter-nut, bass, catalpa, peach, cottonwood and six varieties of evergreens, which grow on the "Park Life" grounds, enabled us to become experts on the tree question, while more botany, observation of plants in their natural habitat, was absorbed by the "Park Life" "fellows" in a day than the most enterprising teacher could have drilled into them in three weeks.

Birds also came within sight of our eager eyes. Quail were studied in their native haunts, and, in connection with this, there was an interesting incident which took place on one trip. A little farmer boy found a quail's nest containing fourteen eggs. Of course he told of his discovery to his friends and



THE OFFICERS OF THE PARK LIFE CHAPTER.

although he had been warned that the eggs would not hatch if handled, he secretly went, and, full of curiosity, touched them all; but the young finally broke through their prison walls—every one of them. Then the boy confessed that his conscience had annoyed him not a little for fear that what he had been told was true, and that the

eggs would not hatch. Meadow larks, sparrows, whip-poor-wills, turtle doves were examined and their nesting places discovered and carefully considered.

(Continued next month.)



THE PARK LIFE CHAPTER AT THE CAMP FIRE.

Death of Professor Alexander Agassiz.

Professor Alexander Agassiz, one of the foremost naturalists of the world, and son of Louis Agassiz, from whom our association takes its name, died Easter Sunday, March 27, on board the trans-Atlantic liner Adriatic en route for New York. He was returning from a trip for pleasure and in behalf of science. His trips abroad always included some collection of specimens for The Agassiz Museum at Cambridge, founded by our Agassiz.

The Agassiz Association extends to relatives and friends, and to all scientists, most sincere sympathy.

"The Boston Globe" has the following statement:

"Alexander Emmanuel Rudolph Agassiz, better known to the world as Alexander Agassiz, simply, was for nearly half a century, in portions of the 19th and 20th, one of the most remarkable scientists of his time, but, unlike nearly all others who have devoted their lives to original research, he was a man of wealth which counted among the millions.

"That wealth was the result of his own scientific knowledge and labors. Indeed, his studies in the Lawrence Scientific School and elsewhere had for their chief incentive the wish to become rich, and yet, anomalous as it may seem, his love of money was most largely based upon his ambition to possess resources to enable him to pursue his investigations.

"Thus, from the time when he was a little more than 30 years old his material prosperity and his wonderful stock of knowledge progressed hand in hand, and each were distributed generously for the benefit of the world by the diffusion of rare scholarships along his chosen lines.

"But to have a full comprehension of the causes which led to the success of this student of nature, financier, author and teacher, the life and character of his parents should be understood, in order that heritage and environment may be considered together and the influence of their joint operation be realized."

"The Boston Herald" says:

"Numerous honors were bestowed upon Prof. Agassiz. In 1873 he was awarded the Walker prize of \$1000 by the Boston Society of Natural History. He was the first foreigner to receive the "Prix Serres" from the Paris Academy of Sciences. Bologna University, on the occasion of its 200th anniversary, gave him a doctor's degree. His degree of L. L. D. was from Harvard, and Cambridge University, England, conferred on him the degree of doctor sciences. He was made officer of the Legion of Honor of France in 1896, and appointed member of the Order of Merit by Emperor William in 1902.

"Prof. Agassiz was a member of many American and European scientific societies. In 1901 he became president of the National

Academy of Sciences—a position which he held for six years.

"The home of Alexander Agassiz was at Cambridge. He was married in 1860 to Anna Russell.

"The Agassiz family and its connections are an important element in Boston. The "Agassiz group" of Calumet & Hecla stockholders includes ten or a dozen persons, and they are factors in many other great enterprises centering there.



PROFESSOR ALEXANDER AGASSIZ.

Cut by courtesy of "The Harvard Crimson."

"Louis Agassiz had two daughters by his first wife. One of them married Quincy A. Shaw, who was a factor with Alexander Agassiz in developing Calumet & Hecla; the other married Henry Lee Higginson, who has given much to Harvard, including Soldier's Field, where athletic contests are held, and Harvard Union, the university club.

"Alexander's three sons are George R., Maximilian and Rodolphe L. Rodolphe is the famous polo player of the family and is as devoted to business as to sport."

Camera Courtship.

She gave him a cabinet photo;

He gazed for a moment or two,

Then pleaded, "Sweetheart, won't you give me

The lovely original, too?"

"If you're positive, dear, you love me,"

She said, through a film of tears,

"A negative I cannot give you—

I'm yours to the end of your years."

So the courtship was quick to develop,

Their marriage was fixed up in town,

And now in a middle-class suburb

She is steadily toning him down.—Judge.

The La Rue Holmes Nature Lovers League

By George Klinge, Summit, New Jersey

"THE GUIDE TO NATURE" is the official organ of the LaRue Holmes Nature League. It is important, for the general League interest, that the magazine be liberally supported, through the active cooperation of League members.—George Klinge.

L. H. Nature League Motto: "Self-sacrifice; heroism for another."

Lectures Before Chapters for February.

Nine by Mr. Wm. Rogers Lord of Mass., and three by Mr. Edward Avis of Conn. Subject; ornithology; bird-music.

New Lcague Chapters.

League chapters recently organized. The Morristown School Chapter. Morristown, New Jersey.

The Morristown Academy Chapter. Morristown, New Jersey.

The Kind Deeds Chapter. Vineland, New Jersey. Miss B. C. Flowers, president; Miss M. Kelley, vice-president; Miss L. Burke, secretary.

The Blue Flower Meetings.

This is the season of the L. H., Nature League Blue Flower Meetings. These meetings are intended to accentuate the League Motto; to put in the hand of every young member, one or more packages of vegetable or flower seeds, that we may miss no hand owning nothing, which might like to own a vegetable or a flower. Further; to inspire toward the culture of fair growths on ground barren and down-trodden—corners, uncared for and unkept; to direct thought toward the marvelous in these atoms containing life, which overcome obstacles on every side, to fulfill their God-given mission, to impress upon every mind, among us, the thought that our way through life is like a pathway through a garden; every day we sow thought-seeds worthless or of use; if we sow seeds of kindness, gentleness, beautiful thought, they will spring up in other lives to make the world joyous.

Eight thousand, eight hundred packages of seeds are ready for distribution this month. G. K.

A Bit of Observation by a League Member.

On Monday I tramped over the mountain, through unbroken snow-drifts; but I was well repaid. I found six of the winter birds in the trees, and also a number of Bluebirds. It was indeed interesting to note how they were crowded in a crotch of a tree, for warmth; one with head north, next with head south, next north and so on. The alternating reds of their throats, and blues of their tails presented a A pretty and attractive appearance.

Dear Secretary—We were very fortunate in having Mr. J. Boniface to speak at our January meeting. He gave an interesting talk on quartz and showed many specimens. He has a fine collection of minerals.

I have started a little museum for the children of the Chapter. A friend has given us a number of curios, and I have many myself. Mr. Bates is aiding us by making a cabinet for us. It will benefit and please the children.

Sincerely yours,

MARIE A. PIERSON.

Hillside Chapter, Morristown, New Jersey.

Daffodil and Crocus Fires.

By Clinton Scollard, Clinton, N. Y.

Daffodil and crocus fires,
How they take the heart!
And the flame upon the briers,
And the lyric bluebird choirs
That uplift their fond desires
With unconscious art!

Daffodil and crocus fires,
They will fail with spring,
And the lyric bluebird choirs,
But a something that suspires
From them—dreams of dear desires
To the heart will cling!

The Song Sparrow.

February 27th is the date of his coming. I know that he is here by the song on the night, given from the woodbine a few feet beyond my window. From then on I may hear him at any time, from dusk to dawn, giving a song, low and sweet, as though it were a song from the sphere of dreams.

He always comes alone, and sings his day-songs to me, from the woodbine wreaths or the twigs of forsythia. A little later Mrs. Song-Sparrow comes to flit in and out where she wove her cradle the May before.

They are late on the wing, these lovers in feathers. When all birds

the aerial pathway homeward, or away!

Above are some of the notes that follow me wherever I go about the garden. Almost anywhere I can look up to some near-by twig, or downward, and find this especial little friend, who is not like the other members of his family who give us lots of Song Sparrow music around the grounds. These seem to sing for each other alone. This little pair, I feel sure, desire to chat and sing to me; to tell me of life's woes and successes—I am seldom alone in Song Sparrow time, nor without music of the friendliest, sweetest kind.

G. K.

Two Octaves higher than Song Sparrow Melodies by Edwina Clark

Moderato

I *mf* (guirral)

Allegretto

II *mf*

Moderato

III *f* *mf* *pp*

Edwina Clark

notes are hushed, and the twilight has well faded out, the two flit up in the woodbine, to see that all is well, and down again to the ground, to hunt over a bit of the wild flower garden, for the last installment of supper.

They are too late on the wing, sometimes for my comfort, for it is my general rule to see these little friends flit up to covert before I respond to the dinner-call—food is scarcely a subject for consideration when one wants to know if evening has brought safely back such dear, wandering wings.

About eight feet above ground the cradle is twined in the woodbine, and what a flood of music wings from some favored little twig, the resting-place in

The Unknown Known.

Many a sweet story of nature's secrets floats in, unaware, on the thread of conversation, from those who haunt the woods, or read volumes in stones of a village pathway. Why is it that such bits of personal observation are so difficult to obtain in writing? Are not words as easily written wondrous as spoken?

It is unfortunately true that only the comparatively few see the infinite in beauty along the wayside, and who in seeing know anything of the wondrous life-history of what they see, or, in knowing it try to give it to another in words. Were this not so, how much richer the world would be in that joy

which none explain, but which is the gift of the Creator to him who stoops to read the epics of time written in the dust.

One leading motive of the L. H. Nature League is to lead toward a stronger impulse along the lines of original observation of things familiar to the eye, yet not distinctively seen, or really known. To lead toward the enrichment of those who see but do not understand, through the written words of those lovers of nature, who each have caught at least a trace of some enticing secret, hidden perhaps to many another eye.

If this department is to fulfill its mission our members will need to remember, and act upon the memory, that to open the gates of knowledge, or of thought, that another may know a new source of joy is not only to pass on the riches of a moment, but it is to store with memory-pictures of helpful thought, the archives of new days—in a word, to give of one's self for another's joy—for ministry.

Then write us scraps of what you know; of what you have seen—not of the lore of books in which you have delved; not from the stories of experiences others have known, but of the something you discovered beneath a stone; of something you saw in the grass, or of some secret, wrapped, perhaps, in the heart of a flower. G. K.

Equisetum Arvense

On April days, when one is looking for hepaticas and spring beauties, among the treasures of the new flower-year, a phalanx of the *Equisetum Arvense* meets the eye as a delightful surprise.

Phantom rush would seem to be an appropriate name for this wierd little presence that springs up arrow-like, from amid arid sands, where little else could find sustenance, coming to us as it does from a long ancestry, reaching back into the Carboniferous and Triassic periods.

It was in those days, lost in the mists of the past, that the Equisetaceæ flourished. Their story is told in the stone book of the ages, where the fossil has written its legends.

The majority have passed with the centuries, leaving only imperfect fossil

remains—*Equisetites*—an order known now through the *Equisetites* which being imperfect in important portions of their structure, tell but a mutilated story.

We have with us, however, the remnant of this interesting order of vascular cryptogamous plants, who have defied the upheaval and tragedy of world-building, and, though in depleted numbers, yet hold their own among the poetic and marvelous creations of plant-life.

The *E. Arvense*, which is the most common of all species, when seen under most favorable conditions, is erect and suggestive of a determined spirit equal to taking up and occupying the ground where it elects to locate. This is said more because of the impression given by the vast array of little straight yellow-brown stems, which may appear on barren sands, than because of any real strength in these frail, fertile stems, which though largely composed of silica, break at the slightest touch.

This fertile stem which is the first to appear in the spring, is a hollow, leafless cylinder, intercepted at the joints, each joint ending in a dark brown toothed leaf, or sheath, which encloses the joint beyond it. These fertile stems end at the summit, with a cone-shaped structure, the organ of fructification, bearing a number of clypcolas, attached by elastic threads, each clypcola bearing a number of sporangia, the threads supporting which are rolled up when moist, but uncoil when dry.

The momentum given the spores through the uncoiling of these threads, aids in their distribution throughout their habitat.

The sterile stems of the *E. arvense* which spring up as the fertile stems complete their mission and disappear, remind one of miniature forests, as their small tree-like forms stand robing in green some dusty arid roadside.

The Equisetaceæ belong to a distinct genus, forming an independent factor in the world's flora in the past, but today numbering only a few species, and these of a very inconsiderable size ranging from a few inches to several feet.

E. giganteum, discovered by Humbolt and Beaupland, in South America, at-

tains a height of five feet and the stem measures an inch in diameter. *E. pratense*, *E. hyemale* and *E. variegatum* are the least common species. They are widely distributed, and choose very different habitats, some clustering on river-bank or brook-side, while others choose to locate in the driest sand.

The common name of horsetails, from *equus*, a horse, and *seta*, a bristle, was probably given these growths because of

species, that plows and harrows are required in ridding the soil of their intrusive presence, and so seem to have been especially fitted to combat circumstance in the battle for survival.

Medical qualities have been attributed to an acid obtained from the Equisetaceæ, and at one time, it was considerably used in this connection; it is now, however, considered of little remedial value.



THE FIELD HORSETAIL—EQUISETUM ARVENSE.
"The most abundant species of Equisetum in the world."

the somewhat bristly appearance of the projecting teeth of the leaf-sheath, enclosing the sections of the fertile stem.

The name scouring rush applies to the silicious character of some of these plants, through which they became known as important aids in polishing wood and metals, for this purpose the *E. hyemale* has been extensively imported into Great Britain from the Netherlands, and is consequently known, in some localities as the Dutch rush. The roots of the Equisetaceæ perennial, and so strong, in some

To the nature lover the ranks of the Equisetaceæ are intensely interesting as remnants of a past age; relics of a contest with the forces of upheaval, and change through the march of the centuries. To these the phalanx of the *E. arvense* is but a procession of little heroes who are here because they have accepted circumstance as they found it and surmounted difficulties which have swept others of their kind to oblivion, and their march onward is because they have persisted without faltering and so have triumphed.

THE MINERAL COLLECTOR

How an Inspiration Became an Actuality.

THE PURCHASE OF A FEW SPECIMENS
LEADS TO THE FORMING OF A WORLD-
WIDE ESTABLISHMENT.

While in New York City recently I had the pleasure of visiting the well-known mineralogist and gem expert, Mr. Albert H. Petereit, and was greatly interested in the wonderful collection of rare minerals and gems which he had collected.

to know how Mr. Petereit received his first inspiration for collecting such a beautiful and diversified lot of nature's wonders I asked him regarding same whereupon he informed me how he, twenty-four years ago, received his first idea. Upon returning home one evening from his office (he at that time was employed as a mechanical engineer) he passed a vender on a street corner of a busy thoroughfare who had some specimens on a small wooden stand. After



FIG. 1. MR. PETEREIT DICTATING TO HIS ASSISTANT.

I felt so impressed by these that I considered it both my duty and a pleasure to tell those whom it may interest all about his remarkable establishment. After receiving Mr. Petereit's permission to write an article on and take photographs of his different departments especially for this magazine, I prepared myself for a second visit with my camera.

Thinking it also would be of interest

inquiring as to the prices of these specimens he ended by purchasing the whole lot, but did not feel satisfied with these alone so purchased more on the evening following, in fact, all that the vender had. Not having taken special notice before of the forms of the pyrite, calcite and quartz, Mr. Petereit was greatly surprised to see the various forms and beauty of these. I was then impressed with the fact that the qualifications of a



FIG. 2 MR. PETEREIT AND MISS HOWARD EXAMINING THE QUALITY OF GEMS.

lover of nature are to be impressed at first sight with that which is natural and beautiful. We all receive that impression as we look about us, and, finding that which satisfies us most, select it as a natural inheritance.

Mr. Petereit did not stop collecting at this point, however. He sought information on the specimens which he had already secured and came in contact

with other collectors who informed him how to procure other specimens. He early found that it was not profitable to collect poor specimens and therefore set about procuring a collection of the finest quality, finding that a better investment. He also mentioned to me, that if a collector possessing a fine collection should meet with reverses, it was always possible for him to dispose of his collection



FIG. 3. SORTING AND PRICING GEMS.



FIG. 4. SHOWING A PART OF HIS GEM STOCK, BOTH CUT AND ROUGH.

at very little loss; not taking into consideration, however, the amount of personal pleasure which he has derived from the companionship of his specimens nor the touch of refinement which it naturally gives its possessor.

I was surprised at the remarkable system which Mr. Petereit has adopted in all his departments in order to facilitate the handling of his daily correspondence, also the excellent method of labeling and pricing which is found throughout his entire stock. Here we can select a diamond, ruby or sapphire of any size desired, and have it tested before purchasing. This is a very satisfactory method, as it gives entire confidence in anything one buys here. The scientific accuracy of the labels on his mineral specimens is another feature of this establishment, and as each specimen is priced, patrons are not embarrassed by asking the cost of anything they are interested in nor finding it more expensive than they can afford to pay. Here both the rich and poor collector can feel satisfied with his selection.

I learned that Mr. Petereit numbers among his patrons most of the important scientific institutions both in this country and abroad; also a great many of our prominent and wealthy citizens and that he has, on numerous occasions, furnished specimens direct to several royal houses in Europe and Asia.

While glancing through several papers from western cities, I found they included articles descriptive of the excellent collections of cut gems, gem crystals and gem material, which Mr. Petereit has kindly loaned some of the institutions. These collections are to illustrate the new departments which recently have been established in many important mining colleges, namely the mining of gems and gem minerals. I have also recently been informed that the Colorado School of Mines at Golden, Colo., has adopted this branch and, upon their being unable to procure a collection for this purpose elsewhere, Mr. Petereit furnished them with the loan of what they desired through which act his philanthropic nature is strongly brought to light.

The inauguration of this department proves the progressiveness of American methods in our institutions of learning, as the U. S. has untold wealth in gems and which has not, as yet, been fully explored, although mining for gems has been conducted in a haphazard way for some years. The remarkable gem stones of North Carolina, Maine, California and Montana give but a slight idea to the Old World the immense possibilities of the New. We can hardly glance over a newspaper without finding some announcement of a newly discovered deposit.

But I must come back to the subject of this article and shall try to describe



FIG. 5. ONE OF HIS CELEBRATED CAMEO COLLECTIONS.

(One-fourth actual size.)



FIG. 6. SHOWS ONE OF HIS CASES OF MINERAL SPECIMENS.



FIG. 7. SHOWS SOME OF HIS UNIQUE MUSEUM SPECIMENS.

the different departments of Mr. Petereit's establishment with the assistance of the following illustrations.

Figure 1. Here Mr. Petereit is seated at his desk surrounded by the many beautiful examples of crystallized minerals recently received. It shows him engaged in his correspondence which I found arrives from every quarter of the globe, in many different languages and which he, being quite a linguist, usually answers in the native tongue of the writer.

Figure 2. Shows Mr. Petereit with his assistant Miss Edith Howard examining the quality of the gem stock. From past experience he has found that it requires the keen eyesight of youth to detect the minute imperfections and beauties of gems and Miss Howard, I found, is certainly expert and remarkably clever in the examination and selection of choice and colored gems.

Figure 3. This picture shows the separating, weighing and pricing of cut gems in his laboratory. Here selections are made to suit the special require-

ments of his patrons so that all shipments may be satisfactory.

Figure 4. Here a small portion only of his large gem stock is shown especially arranged for this photograph. To the front we see the celebrated California gem tourmalines, crystals and matrix specimens; also emeralds, aquamarines, rubies and sapphires in the rough. Directly back of these are a series of natural specimens and also a large tray containing a fine collection of cut topazes in all shades of colors known. To the right is a collection of antique jewels. Directly in back of these are three trays containing all the well-known precious stones and above

best known gem collections in the world.

Figure 6 and 7. Here a few of his specimens are shown to illustrate the unique way he has for displaying his minerals to their best advantage. Here are found specimens of all known minerals from all parts of the world, rare and common, and they certainly make a picturesque display; all scientifically labeled and with prices plainly marked.

Figure 8. This shows the method of checking off and preparing minerals and gems for shipment. Being, as it is, one of the important branches of the establishment it requires expert and careful as well as trained assistants as it is of the utmost importance that this work be



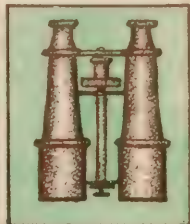
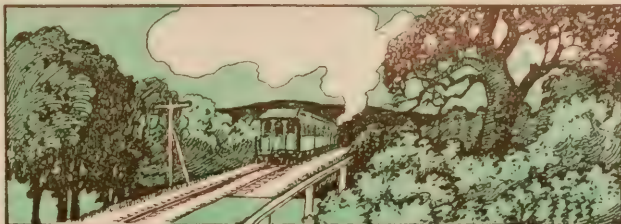
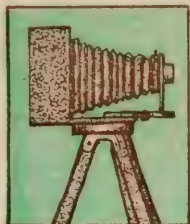
FIG. 8. MISS TEELING AND MISS HOWARD CHECKING OFF GEMS AND MINERALS FOR SHIPMENT.

are paste-board boxes containing gems alphabetically arranged, weighed and priced ready for sale.

Figure 5. Shows one of Mr Peterreit's many celebrated cameo collections consisting of cameos in Russian malachite, carnelian, coral and Lapis lazuli and different shades of lava, showing biblical and mythological subjects; representing ancient master work in relief carving. Several of the collections recently sold have found homes in the correctly done. Here we see Miss Teeling and Miss Howard checking and invoicing a shipment about to be sent to

one of the establishment's numerous and steady customers.

I found Mr. Peterreit a very interesting and active business man and my visit to his office, 81 Fulton street, will always be remembered by me as a very interesting one. I must not forget to add that a visit to his establishment is for everybody and anybody a pleasant as well as educational one, as one there comes in contact with the greatest wonders and beauties of mineralogical nature, and the rare and fine specimens which I saw there can not be found elsewhere.



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ARCADIA, SOUND BEACH, CONNECTICUT

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Full particulars upon addressing this magazine.



THE LAND AND THE HOME

A LOCAL DEPARTMENT

Real Estate and Home Supplies Along the Connecticut Shore

Shippan Point.

The east side of Shippan is being opened up in building lots by Frank B. Gurley, the enterprising real estate agent of Stamford, who has recently figured in several large real estate deals in the city.

The tract being on the east side of Shippan Ave., it is near the trolley line, which now runs cars at frequent intervals all the year round. The ground is high, and the view magnificent, commanding a sight of the prettiest part of Long Island Sound. It also overlooks Hallowe'en Park which bids fair to become one of the most attractive public parks in this part of the country.

This property has been divided into thirty-two building lots. Some of these will front on Shippan avenue, and others on the water. A forty foot street, with walks and curbs is to be opened through the property. The

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beach on the east will be reached by a flight of attractive cement steps, and, by terms of the deeds, be free to all of those acquiring lots on this tract.

The bathing, boating and fishing facilities, are as fine in this section of Shippan, as on the west side, or nearer the extreme point.

No section of Stamford has attracted more favorable attention of late than Shippan Point. It is not definitely known how the name of "Shippan" originated. In ancient records the name is found to be "Ship Ann" and the writer has heard his grand-father say many a time that the point was named from the "good Ship Ann which foundered off the point on the treacherous rocks," which are a menace to this day to steamboats and schooners which ply their way from Boston to New York.

When Stamford was first settled, this part of the land was discovered to be the most desirable of the holdings of the Indian chiefs. It gave to them

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their fish supply, and the fertile soil annually rewarded them with a harvest of beans, squash, corn, and other vegetables.

Later on, in about 1845, Shippan was, as now, the great shore resort of the town. It is recorded that in this year a picnic and clam bake was en-

joyed by five hundred people on the Point.

If our forefathers could visit Shippan today, they would be surprised at the improvements. A more beautiful residential section cannot be found on Long Island Sound.

Among those who have homes at



THE STAMFORD YACHT CLUB HOUSE. SUMMER HOME OF THE CORINTHIAN YACHT CLUB

Shippan are James S. Herrman, Geo. A. Jenkins, Robert A. Fosdick, Frank Shea, E. E. Rhinehart, Jr., Dr. T. V. Ketcham, W. H. Martin, James S. Jenkins, Dr. Winfield Ayres, Leopold Barzaghi, Walter A. Burke, Homer S. Cummings, Dr. Harvie J. Dew, Stewart R. Edson, F. R. Gillespie, W. F. Gillespie, Walter E. Houghton and many more.

On the west shore is the Stamford Yacht Club. It is one of the best appointed and managed clubs on Long Island Sound. The club house is open all of the year, and its spacious piazzas enclosed with glass, and steam heated, are the scene of many a winter luncheon given by the society women of Stamford.

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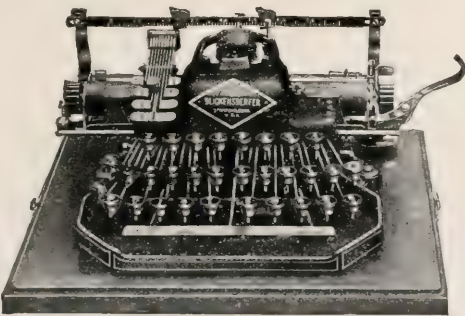
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RESIDENCE OF GEORGE A. JENKINS.

Stamford.

At last the site for the new Stamford Hospital has been decided upon. Through one of Stamford's oldest residents, the Stamford Hospital Corporation has come into possession of a fine piece of property on Hubbard Hill. Mr. Albert Crane, the donor, will

always be numbered among Stamford's benefactors. This gift is a memorial of Mr. Crane's parents, the late Thomas and Clarissa Starkey Crane, who came to Stamford fifty years ago and made their home on beautiful Strawberry Hill.

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THE HOME OF MR. PARSONS IN REVONAH MANOR.



ONE OF THE STREETS OF REVONAH MANOR.

Martha J. and George L. Waterbury, and is about six acres, with land adjoining, belonging to the Fernwood Nursery, also about six acres, making an area of something over twelve acres. The site is on high ground, commanding a fine view, and within easy access to the center of the city, and when the hospital plans are completed, the trolley will, no doubt, be extended over West Broad Street bridge.

April opened encouragingly, with a deal in real estate worth while. William H. Currie and A. M. Miller, members of a syndicate and lessees of the Alhambra Theatre, are going to give to Stamford a new theatre, with seating capacity of 1,500. It will be called the Stamford Theatre.

This syndicate has purchased the property on Atlantic Street, known for many years as the Bean property, and which was bought at public auction some years ago, by a syndicate of Stamford men. The theatre proposed, will be modern in every detail and the ground will be broken in June, and the

TRY BEEHLER

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SASH, DOORS, BLINDS AND WINDOW-FRAMES

WHOLESALE AND RETAIL

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STAMFORD, CONN.

work rushed forward, so that the building may be opened for the theatrical season of 1910-11.

O. L. Noxon, proprietor of the Elm Refining works, which is situated in South Stamford, has recently become the owner of the Warren property on Willow street. This property has a frontage of 100 feet, and the new owner expects to build a collection of houses very like those in Willow Court. This will be a great improvement to Willow street.

One of Stamford's oldest citizen's Mr. Walton Ferguson has become the owner of the Hotel Canonicus at Fisher's Island. This is only a small part of property holdings of Mr. Ferguson and his brothers at this favorite summer resort.

This Department, The Land and the Home, is to be enlarged beginning with the next number.

R. F. Voska

A. D. Otto

VOSKA & OTTO MERCHANT TAILORS

Cleaning, Pressing and Repairing Done Promptly.
Work called for and delivered.

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Expert Clock Repairing

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Up-town Office: STARK BROS.,
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87 Atlantic Square

TWO STORES

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ELEGANT COUNTRY ESTATE FOR SALE

Grounds, 65 acres.

Buildings on the place.

House, Colonial.

Large Stable (red slate roof), containing: Two living rooms for help, four very large box stalls, four large single stalls, room for 12 carriages.

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Four large Greenhouses and one Grapery. **Gardner's Cottage**, blue slate roof. Complete Water System, connecting all outbuildings and grounds.

Twenty-four Cold Frames.

Brooder Houses.

Ice House and Gold Fish Pond.

Dog Kennels.

Chicken House, hot-water heated.

Pigeon Houses, Pig Pens, Tool House.

Laundry, separate building from main house with water connection.

House, Steam Heated, Electric Light.

Ground Floor: Three large porches, one of them 32 x 24, fully equipped as living room; library 28 x 20, open fire-place; main hall; music room, open fire-place; sitting room, open fire-place; large dining room; smoking den; billiard room, large open fire-place; butler's pantry; toilet and wash room; four kitchen pantries; stationary ice-box built in kitchen.

Second Floor: Six masters' bed rooms, two with open fire-place; two servants' bed rooms; two masters' bath rooms; two servants' bath rooms; three stationary wash-stands in sleeping rooms.

Third Floor: Four large masters' bed rooms, one with open fire-place; large light closets in every sleeping room; hardwood floors throughout.

Water supply in abundance and of most excellent quality.

Superb view of the Sound from any part of the ground, and even from the ground floor of the house.

Many thousands of fine old trees on the place.

Orchard in fine condition, over 200 fruit trees.

Abundance of small fruit, asparagus, strawberries, etc.

Large quantities of herbaceous plants and flowering shrubs.

Large Pines and other Evergreens.

One mile of Arbor Vitae hedges, 14 feet high.

Last Fall, 10,000 Narcissus, 5000 Iris, many hundreds of Paeonies, Lillies, etc., were put into the ground.

Location very high, almost one mile road frontage.

One mile from Glenbrook Depot of New Canaan Line.

One mile from Glenbrook Depot of New Haven Line.

Three miles from Stamford Depot.

Three and one-half miles from Noroton Depot.

One and a quarter miles from Trolley Line.

Three and one-half miles from Stamford Yacht Club and Bathing Beach.

Price, \$80,000, half of which could remain on mortgage.

Address D., Care THE GUIDE TO NATURE, Arcadia: Sound Beach, Conn.



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— runs regularly from —
Riverside to Tokeneke

and is at your service
for delivery of

Meats, Fish, Vegetables
and Fruit

The E. B. Hoit Company
486 Main Street
STAMFORD, CONN.

Connecticut Farms.

Much has been written about Connecticut farms being deserted. This may be true of certain sections where the farm land is some distance from the railroad, making the transportation of product cost more than the proceeds.

A drive over the hills in the suburbs of Stamford, will show the visitor that farming is not a failure in this part of Connecticut. Starting from Strawberry Hill, and driving north, we come to the large peach farm of Robert L. Case. During the season of this luscious fruit, the sixty acres of peach trees, yield something like ten thousand baskets of marketable fruit.

Mr. Case employs twenty-five pickers in the orchards, and twelve sorters in the fruit house, which is a large barn of ancient date. It is a wonderful sight to view rows upon rows of rosy cheeked peaches on the floor of the barn. A ready market is found in Stamford, Greenwich, Portchester and New York City.

During June, Windridge Farm is the scene of strawberry picking. Last sea-

Real Estate Register

Published Weekly by

JAMES M. COX

South and Washington Sts.

Jamaica, N. Y.

Telephone, 1221 Jamaica.

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Call at our office or make appointment and our representative will call upon you.

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Telephone 781
STAMFORD, CONN.

"Upon properly appointed and becoming dwellings, depends more than anything else the improvement of mankind."—*Disraeli.*



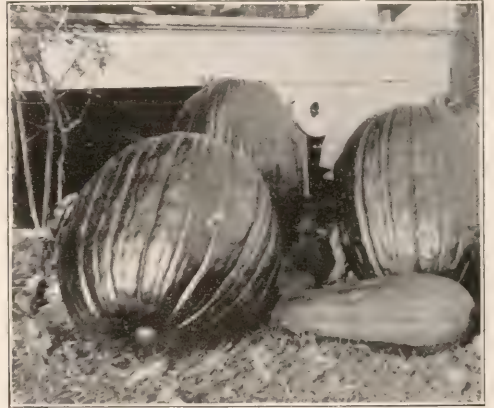
A VISITOR TO THE HAYFIELDS ON THE SAMMIS FARM IN JUNE OR EARLY JULY WILL WITNESS A SCENE LIKE THIS.—The gentle-eyed oxen enjoy having their pictures taken.

son 12,000 (twelve thousand) baskets were sold, and this season a larger crop is expected, as there will be thirty thousand (30,000) plants in bearing condition.

The next farm of about seventy-five acres, is owned by Hiram Sammis. This is as finely situated as any farm on Newfield Avenue. Mr. Sammis raises principally potatoes and field corn, pumpkins, hay and rye which go toward the support of his herd of fine cows. Some of the large pumpkins weigh in the neighborhood of two hundred pounds.

To the west of the Sammis farm is a

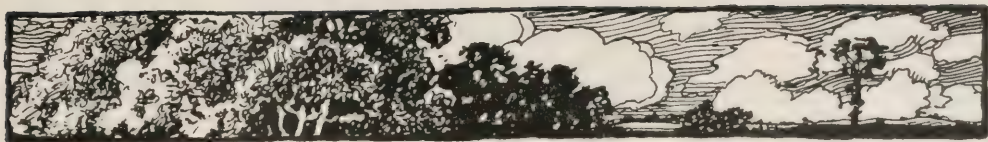
(Continued on page xv.)



PUMPKINS OF ALL SIZES GROWN ON THE FARM.



SUMMER HOME OF MRS. THOMAS S. GRAY AT NEWFIELD.



Old or young, wise or ignorant, rich or poor, adult or child,
tall or short, broad or narrow (in any sense), or any scale
between these extremes—WE CORDIALLY INVITE YOU
to join The Agassiz Summer School, nature convention, revival

Arc adia

in God's Works, or whatever you see fit to call it, that begins on
June 27th and continues for four weeks. Come and let us help
you, or you help us; it is our duty to aid, and our necessity to
be aided.





ARCADIA

The Home of All Nature

Sound Beach, Connecticut

The doors will be opened wide and cordially to all people on June 27th, for four weeks' session of PERSONAL NEARNESS TO NATURE. Come whether you love nature or, or—no, there isn't any one who doesn't—whether you are solons or ignoramuses—and we are all of the second class—we can know but a fraction of what it seems as if nature must have expected us to learn.

EMPHASIZING AN IMPORTANT DEPARTMENT

We have brought forward, as an opening department, for this month only The Educational Humane Society, because its work is important. We want you not to overlook but to cooperate. We thoroughly believe in humane-ness founded on acquaintance, association, intelligence and love—not on law.



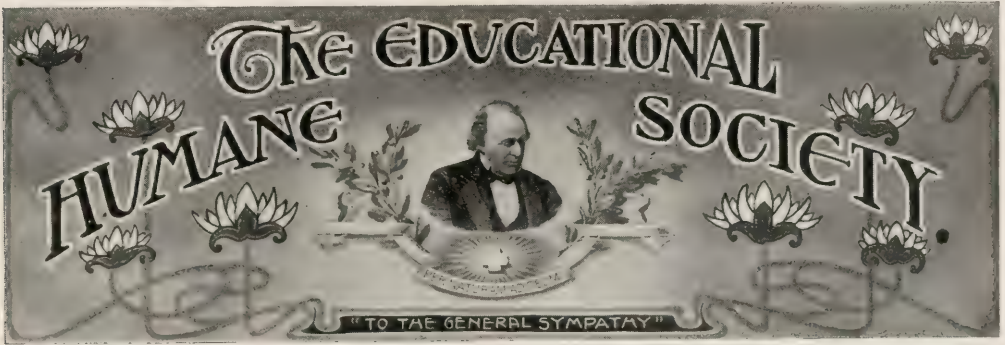
THE GUIDE TO NATURE

EDUCATION AND RECREATION

VOL III

JUNE, 1910

No. 2



A Chapter of the Agassiz Association. (Incorporated 1892 and 1910.) The Law of Love, Not the Love of Law."

The Guide to Cavy Rearing

BY C. H. ELLARD, SECRETARY THE AMERICAN FUR FANCIERS' ASSOCIATION
LONG ISLAND, NEW YORK



OW to rear cavies or, as they are more commonly known under their pseudonym, "Guinea pigs," is the question your editor asks me to answer. The entire subject may be divided into three important sections, viz: housing and care, feeding, and the selection of stock.

HOUSING AND CARE.

As to the first, it is always best to have "your cage before you get your bird;" so provide a house for your "piggies" first. The most easily made are those constructed from a dry goods' box such as is usually about twenty-four by eighteen by fourteen inches or thereabouts. Arrange it so the open space is placed so as to give the most floor, room, and make a door of shingle

lath or other soft wood strips to fit this opening. Nail this firmly together and cover with wire cloth of about quarter inch mesh. The half inch mesh will do but the finer wire excludes the mice and so save on grain and coats if you keep Peruvians.

If your door fits snugly your hinges will go on easily and a hook and eye will serve to keep it fastened. Cavies will get along very well in a space twenty-four by fifteen by fifteen inches though one a trifle higher and deeper is more desirable, and in this space a pair may be kept. These boxes may be placed one on top of the other in tiers as may be convenient. For the bottom of each one a gas stove tray of galvanized iron will be found a great convenience in clearing and caring for them. These trays come in such a

variety of sizes that one can almost always fit his box. On these trays a liberal coat of sawdust and a bunch of hay make the cavy's home comfortable. The food cups may be of various types from the odd house saucers to the galvanized cup that hangs on the wire door and which we find the most satisfactory. They are easily gotten at about a dollar and a half a dozen in all poultry supply stores, or a size more adaptable for cavy is made by one of the members of the American Fur Fanciers' Association. A water cup should also be provided unless you are liberal with succulent green food.

a year and clean out twice a week, renewing the sawdust that is soiled. Handle your stock gently and as often as you can so that they get accustomed to it and so will be quiet when they come up for judgment at any of the exhibitions to which you will of course send them.

FEEDING.

Next the feeding problem is to be considered. In this good common sense will help considerably. Every animal appreciates a variety in its food and so it is with cavy. They are always fond of hay and some of the breeders who keep large numbers to supply

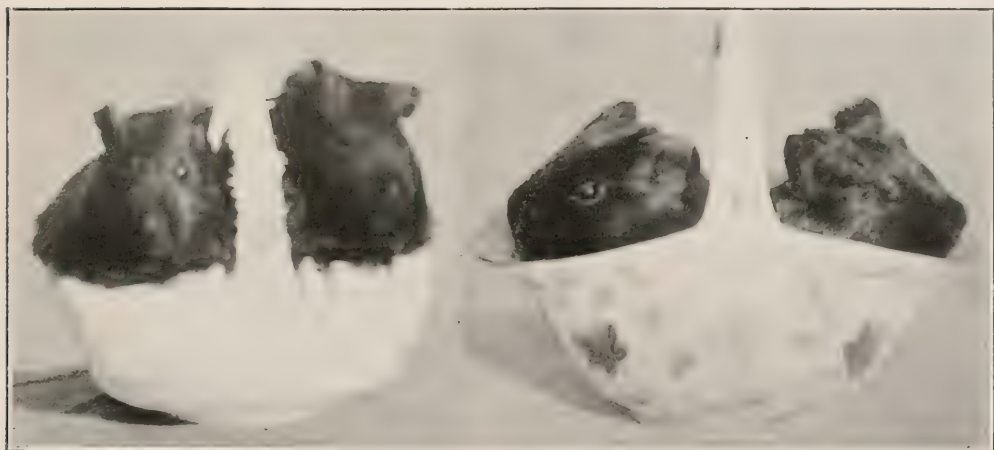


AGOUTI CAVIES ARE LOVABLE PETS.

These hutches are of course for use inside a building. For out-of-door hutches any style of portable building divided off into compartments and provided with shutters or some sort of screen at the front to break the wind and keep out the rain will be satisfactory, but Peruvians had best be kept indoors in locations north of Washington. The other varieties are as well off outside if protected from draft and damp, but these with poor feeding will ruin all chances of success for anybody. In building outside hutches face them south or southwest, and use either tongue and groove or ship lap boards, and it would be wise to cover roof and sides except the front with a good tar or asphalt paper.

Whitewash the interior at least twice

laboratories for scientific research feed them little else, but they need other food. Grass and almost all the succulent herbs are good food material. Clover, plantain, lettuce, chicory, alfalfa, beet tops and all the root crops can be used as part of the bill of fare; and if these substances containing considerable moisture, as they do, are used freely the need of supplying water is minimized; but should this green food supply be short or not succulent, water should also be given and care used to keep it clean. The main food should be good whole oats with an occasional change to wheat or a mixture of wheat and oats. They also like bread and the various farinaceous materials that can be classed as "breakfast foods," also even Indian meal, scalded and crumbly.



STUDIES IN BLACK AND WHITE.

A good general menu would be oats night and morning with a handful of greens or a carrot or other root and some hay as needed. Once a week is often enough to give any soft feed. Above all avoid any soiled or mouldy food. These animals will thrive for anyone if kept dry, cozy and fed liberally, but they are very susceptible to lack of these essentials.

BREEDING.

For breeding, which is the ambition of every fancier, the boar is allowed to run with two or three sows until there is evidence of a coming family. Take the female out under these circumstances and put her in a hutch alone until she litters. If it is wished to breed immediately again the boar and sow may be left together, but do not leave too many together or you will lose your youngsters as they are likely to be

trampled on, even if born all right. In making your matings follow out some definite plan and have some object in view. Aim to improve your stock and bring it nearer the ideals of the standards, and you will derive no end of intellectual enjoyment and increase your nature knowledge by wonderful bounds. More extended information on the general plan to be followed can best be gotten from the newer fancier booklets.

SELECTION OF STOCK.

As to the selection of the stock, much will depend on your own taste. There are three chief varieties of cavy: the long silken tressed Peruvian, the most aristocratic perhaps of all; the rough, bristling, saucy Abyssinian has charm in his radiating rosettes, while the sleek, blocky and graceful, smooth coats are to-day the leaders in perfec-



JUST THINK OF THE ABSURDITY OF ASKING ANYONE TO BE "MERCIFUL" TO THESE!

tion of color and form. A fancier can choose one or all as his hobby, but it is best to select one or two kinds and stick to them. It is better to try to perfect one or two kinds than to spread your energies over a lot of mediocrity.

In getting your stock there is much that might be said in the way of advice but in spite of it most novices go their own pace and are successful or disappointed according to their method. There is only one place to buy stock for the purpose of pet or fancy and that is from some one who has thoroughbred stock and a reputation for square dealing. Better buy from a member of the federated fanciers' clubs if you are forced to choose between such and an outsider, for even were the latter inclined to give you no satisfaction he would be deterred from unfair treatment for the sake of his reputation and the penalties the association can inflict. Next do not be too parsimonious in your deal.

As a rule you will get more in stock than you pay in money, but do not expect to get anything approaching fancy stock at fifty cents. No one can rear a good animal for that. But if your purse is thin go to a reliable fancier and tell him as nearly as you care to your limit in price. It may be that from his stud of thoroughbred stock a few "culls," as those that are not up to the exhibition requirements are called, might be secured, and you will be able with care in breeding to gradually build up a really good stud. Such stock or breeding stock from such a source is miles ahead of the unknown, promiscuously bred, store stock that will give you all sorts or results, and with the latter should be classed the stock of those who farm or breed quantities for the laboratories, etc. Some of these men will give you as nearly as they can what you wish; others will treat you to the sensation the small boy expresses in "Stung."

In any case get as good material as you can and bend your energies toward improving and developing it. Visit exhibitions and exhibit your stock and the pleasure and intellectual education and relaxation you will derive will surprise you.

From the Dog's Point of View.

(A Letter from "Jo".)

II.

St. John's N. B.

To My Mistress:

Perhaps because I am only a dog I should not expect to get direct answers to my letters. Perhaps because I can



"LATE IN THE EVENING I WAS LET OUT FOR A RUN."

enjoy bones that have been chewed over by some cur, and are thus second-hand, you may think that by thanking some (to you) unknown human, it is all the same to me because I am only a dog. Is it the same to you if some one you love sends you a kiss and some one you don't love applies it? Humans may like it anyway! But as a dog, I don't.

Dear mistress, you have given me a very long name. I suppose I was christened by immersion which doubtless accounts for my being so afraid of the water and of getting my coat wet.

Any time you want to tell me that I'm still your darling dog, just address

me "Jo", 62 Wright street, where I will venture to say I am better known than his worship, the mayor. But my name and fame go far beyond this locality. Numbers of ladies all over the city say, "Jo; I like you," while by the action of others, they evidently don't! Doubtless they are envious—perhaps of my teeth. I really think the ladies are a far more envious set of humans than the men.

I met Aunt Fan at the railway station (depot you call it in the states) the day she arrived, and was awfully glad to see her again. Did we kiss? A human might tell. But a dog never!

On St. Andrew's day I was possessed with a very strong craving for something. Nothing that I ate seemed to satisfy this strange inward queer-ness or longing. It was not the thirst that is peculiar to all Scotch humans, which I believe only attacks them in this form every thirtieth of November. Really, dear mistress, I thought that could I only have laid my head on your lap, so that your experienced eye could have gazed into my brown ones, you could have helped me, but the instinct which my Scotch blood gives me made me feel that what I hankered for, but had never had, would come to me. On the day devoted to the patron saint of Scotland, I should have felt as lively as a mosquito, but instead I was filled with untold miseries. At last late in the evening I was let out for a run which I did not stop until I reached the delicatessen, kept by a good friend of mine—of course a New Yorker, and on the floor of his shop I picked up something. Oh, happy hour! It was Haggis! It was it! On my way home I heard in the distance the bagpipes, the strains of which are always so endearing, and late as it was for me to be out, I could not resist the temptation of sitting on the sidewalk to listen to them, where with my stomach filled with Haggis, and the air with bagpipes, I fell into a reverie from which I awoke as it were with a start, caused by the clock in a distant church tower striking the "wee sma" hour of one. I bounded home as fast as I could, feeling an awful faintness and

trembling as I stood at the door and making a noise which doubtless my Jack relations took for whines, but in the language of the Scotch terrier was, "Saint Andrew defend me from the whip." But, my dear mistress, I must draw the curtain over the winding up of my innocent little spree. I am only a dog, but I have a heart. You know sometimes when our feelings are badly hurt

"We bear it calmly, though a ponderous woe,
And still adore the hand that gives the blow."

The other day while trotting along a path in Rockwood Park I saw a short distance ahead of me something that I took to be a big snowball, but before I had quite reached it, it hopped into the woods. I barked and gave chase, expecting to see it climb up a tree like a cat. But no! It would not even run straight, but kept dodging around, and as I was not used to that kind of sport, it made me so tired that I soon gave up in disgust; but had it been a rat or mouse—Gee whiz! but there would have been a different tale to tell.

Christmas is coming, and if I hang up a stocking it won't be the kind I wear. Dear mistress, any time you want to give me presents, you know what I like—Haggis on Saint Andrew's Day, and on any other, rosy bones and cake.

With oceans of love and wishing you a Happy Christmas, I am

Forever yours,

"Jo."

P. S.—I can eat cake every day and any time I can get it. "Jo."

Pet Mice.

BY R. W. SHUFELDT, M. D., WASHINGTON,
D. C., CORRESPONDING MEMBER ZOOLOGICAL SOCIETY OF LONDON.

Many of those who will read this article have doubtless sometime in their lives kept as pets those well-known little albino mice found in almost every animal and bird store worthy of the name. Occasionally they are piebald or party-colored, as are also their close relatives—those



FIG. 1—KANGAROO MOUSE OR RAT
(Two-thirds life size.) Photographed from life by Dr. Shufeldt

curious little waltzing mice—found in the same establishments. As is the case with all true albinos their eyes are pink, unless the black in the coats of the piebald ones predominates; in which event the eyes may be black, or at least very dark brown.

Now it is a well-known fact that in the case of all albinos, be they fish, reptiles, birds, mammals to include men, there seems to be always something lacking in them. It principally appears to be a certain kind of listlessness, an absence of vigor and vim, or even in some instances their intelligence is of a low order. All this, apart from the fact that they excite in us a certain kind of curiosity when we meet with them, owing to their complete "whiteness," they are uninteresting creatures, and frequently very stupid and unduly tame. To all this white and piebald mice form no exception, and as to those little dancing chaps, personally I would not own one of them. They are too distracting; they behave as though they had something the matter with them and stood in need of the care of a veterinarian. Who wants to keep a little mouse, as a pet, when the creature is continually giddily whirling round all the time in an aimless sort of way, just as though it were trying to catch up with the end of its tail?

We have in this country a very large number of species of wild mice—ferine forms—and many of these when cap-

tured and tamed make the most interesting little pets that any one would care to keep. Several of these have been so kept by the writer of this article, and observations made in their interesting habits in confinement. One of the most abundant forms with us is the common little deer mouse of the eastern United States, and to obtain one of these for yourself is quite a simple matter, especially if one be living in the country, or even in the suburban districts near any of our large cities.

Mine I used to capture with a common figure-of-four trap set in the woods where I knew they were to be found, and baited with a small bit of a cob of corn, with the dry grain left on it. Although it is now over forty years ago, I shall never forget my first taking of one of these truly beautiful little creatures in a trap of the kind just mentioned. It was a bitterly cold morning in the middle of the winter in New England at Laddin's Rock, not far from the then town of Stamford, Connecticut. The little fellow had been in the trap apparently all night, and when I peeped into it, was standing there shivering with the cold and with fright. His great round black eyes appeared to be almost popping out of his head, and I shall never forget the beauty of his soft coat of brownish fawn color with all the underparts and feet as white as the snow that nearly covered the trap and the

ground about. Certainly he was the most striking looking little creature that one can well imagine.

After getting him home and warmed up in my room, I took him out of the trap to place him in more roomy and comfortable quarters. Much to my surprise and pleasure, he made no attempt to bite or scratch, as most mice do under such handling, nor did he squeal out as though he was about to be killed. In other words he was the most peaceful and by all odds the gentlest of all the little rodents I had ever had in captivity, and that is saying a great deal, for in my time I've had a whole lot of species from a field mouse to a muskrat.

To any one who is a naturalist and accustomed to the care of these small mammals it becomes apparent almost at once that few there are that make more interesting little pets than this very same deer mouse or, as they are likewise known up in New England and elsewhere, wood mice and white-footed mice. All three of their ver-

nacular names fit them very well, for between color and expressive eyes one of these little fellows certainly does call to one's mind the doe of our common white-tailed deer; while at the same time we give them the name of "woodmice" from the fact that they almost invariably make their home in the woods at all times of the year. Nevertheless we sometimes find them living in various places in open fields. We also call it the "white-footed" mouse for reasons too evident to require explanation.

These little mice make the cunningest sort of pets, and if one is so fortunate as to have secured a mated pair of them, there is no trouble about having them breed and rear their young in captivity. All that is required is a medium sized cage to keep them in, more for the sake of protection against cats and unlooked for accidents than the necessity of any confinement, for they soon learn to love their home and are quite contented when properly looked out for. They should be pro-



FIG. 2—WHITE-FOOTED OR DEER MOUSE
(Two-thirds life size.) Photographed from life by Dr. Shufeldt

vided with a conveniently sized limb of the right proportions, that is hollow with a knot hole leading into the cavity for them to go in and out of. In this they will make their nest after they have been provided with a lot of fine, dry grass, flax or some similar kind of stuff; almost anything but cotton which they do not especially seem to fancy. All kinds of nuts, grain and seeds is the diet they are most accustomed to, but there are a few berries they also like, and for a treat sometimes a bit of raw meat. In nature they are unfortunately fond of both young birds and eggs, but it seems to me I would not encourage them in this taste, and, as a matter of fact, they do quite as well without anything of the kind being added to their menu. Of course a little dish of clean water is essential, placed somewhere in the cage where they will not forever be getting into it, to soil their beautiful, pure white underparts, so much admired by every one to whom you exhibit them.

It is truly wonderful how very soon these cute little chaps come to know you, their familiarity and gentleness being ever on the increase as they come to know you. Like the dormouse, of which the children in England are so fond, our deer mice are largely nocturnal in their habits. Still they are often out in the daytime, and in the winter seem to appreciate being allowed to take a little scamper on the snow in some place where you can easily watch and recover them. They are more or less playful sometimes, and soon learn to walk up and down one's arm, in and out of pockets in search of bits of nuts you may have placed therein for them to find.

Deer mice are extremely cleanly in their habits, and it is indeed a pretty sight when one of them sits up like a squirrel in one's hand and fixes himself up with his dainty little snow-white feet. They have the same way of polishing up their nose with the fore paws as do squirrels and common house mice, as well as giving the same attention to their long and very conspicuous whiskers. If one cares to, they can, with patience, be taught quite a num-

ber of amusing tricks, but personally I have never cared for the so-called trick animals of any kind and surely mice included. Their natural behavior is what I most admire, and all that I care to study.

This species has large and prominent ears, though not as large as those of a new deer mouse I discovered in New Mexico many years ago and named True's Pinion mouse (*P. truei*), and it, I believe, has the largest ears for its size of any mouse in this country, attracting the attention of any one the moment the animal is seen. My photograph of a deer mouse, illustrating this article, shows the species life size, and is of a specimen I caught near Washington, D. C., and kept for a time (Fig. 2).

I must not forget to say that these mice have a peculiar little "song" at night, but this we find to be the case with all of these creatures. It resembles the twitterings of some of our small song birds, and is by no means an unpleasant sound.

Of all the wild species of mice I have ever kept, the far most extraordinary were several individuals of a Kansas form known as Richardson's kangaroo mice, though they are so large that they are likewise known as kangaroo rats. This rodent is even a handsomer animal than its congener, the deer mouse, for the soft ochraceous buff of its upper parts is extremely pretty and attractive, while the white-striped flanks, pure white limbs, feet and under parts, together with the long, bushy tail form additional features for our admiration.

I succeeded in obtaining several interesting life size photographs of these curious representatives of the mouse group, and the reproduction of one of the best of them is shown herewith (Fig. 1.)

Here we have a rat-like mouse with small ears and very big eyes, and with small fore limbs and kangaroo-like hind ones. They were the funniest little animals one ever saw, and made great pets. To call them energetic and restless does not half express it. Their vim was something remarkable. They would jump a third the way across the

room like a dart, steering themselves by means of their long, bushy tails. And dig? Dig does not half express it either, and the rapidity with which one could burrow along underground almost defies description. While taking the same food as our deer mouse, they did not seem to be nearly as contented in captivity as its more sedate cousin of the East.

The Care of Alligators.

Jamaica Plain, Boston, Massachusetts.
TO THE EDITOR:—

I have just had a young alligator given me by a friend, but I do not know how to keep him healthy and strong or how to feed him or whether he should live on land or water; so, as I do not know of any one that can tell me, I am writing to you to find out. Could you also tell me what marks of distinction there are that make one able to tell the difference between a crocodile and an alligator?

Yours respectfully,

PHILIP F. BROUGHTON.

I have two alligators, both almost five feet long, which I have raised and observed for eleven years. They were about ten inches long when I first received them, so you see how interesting they have become.

The first question to be solved is that of a suitable place in which to keep your alligator. While he is fond of the water and swims admirably, he is not a fish and does not relish being in the water constantly, so you will have to arrange a tank so that he can get out of the water at times. A good plan is to take a good sized aquarium and decide how much water you will need; by this I mean how deep it will have to be, allowing enough water to just barely cover the alligator's body. Then build a platform above the water, say three or four inches, and construct a stairway so that the alligator can go up stairs and get out of the water. This he loves to do, especially on bright sunny days in winter when the whole outfit should be moved into the sunshine at a window; at night he should be

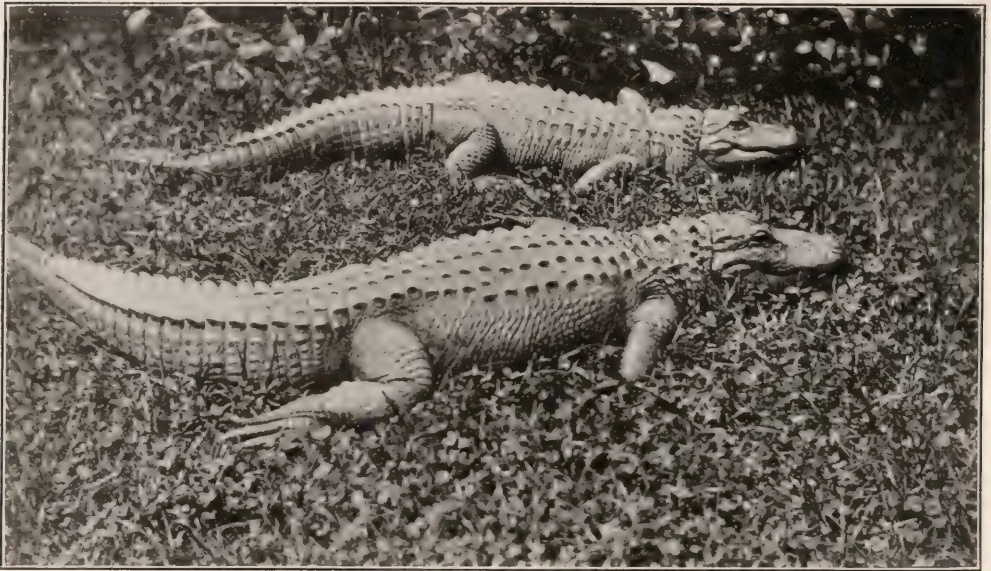
moved away from the window, being a Southerner and not fond of our cold winters up North. But in summer such quarters are entirely too cramped and small, for then the alligator gets very active. He now wants to be out of doors and it is best to arrange a pond for him out in the garden. Make this of concrete with a sloping bottom in a part of it; this permits the alligator to lie in water at different depths and also to dive and swim in the deeper places. Surround this pond by a good stout wire fence, allowing enough ground all around so that he can walk and run about and also bask in the sun. It is advisable to put a projecting ledge about your fence for you will find the alligator to be very inquisitive and fond of roaming, and so he will climb the fence unless you prevent this. Try to locate your pond where it will have an abundance of sunshine, for this the alligator likes better than anything else.

Construct a wooden shelter or plant some bushes so that he can get shelter should the sunshine prove too hot. If your garden is completely fenced in you may not require a fence around the pond; but where strange dogs and possibly boys bent on mischief can get in easily, it is best to protect your pet by a fence around his home, for this he considers his pond to be, and he will always hurry there in case of danger. Construct it so that he will not only feel secure there but actually be so, for that is an important matter in keeping pets. As he grows larger and stronger he will not fear the dogs and you can then give him more freedom; mine walk all about the garden, coming into the house, going up stairs, exactly as they wish. Build your pond sufficiently large at the beginning, otherwise you will have to enlarge it at regular intervals, for the alligator will grow if you take good care of him.

Now as to the food. Unless kept in a tank of warmed water such as they have at New York, alligators do not eat during the winter months;

that is, from September to May or June. Even fish of which they are very, very fond do not tempt them. In May or June as the first blue-bottle flies fly lazily about in the sunshine I catch a few and tempt my alligators. After snapping up one or two I know that they will require more solid food in a few days, and so I try them from time to time. Little alligators relish angle worms most; these you will have to dig in the garden and you will be surprised to find how many he will

first or they may inflict serious bites. The amount of food and the frequency with which he will eat will depend upon the weather; the hotter the day the larger his appetite; and if very hot he may eat more than once. After he gets real tame he will notify you when he wishes to eat by coming towards you and by calling. They having a peculiar call or bellow. He also gets very restless when he is hungry. Always remember alligator's fondness for flies, for he will enjoy them



"I HAVE TWO ALLIGATORS . . . WHICH I HAVE RAISED AND OBSERVED FOR ELEVEN YEARS."

eat. After a few years he will refuse the worms and then you had best feed him on meat, raw beef being best. Cut this into strips resembling earth-worms as much as possible. At first alligator may not like this change in his diet, but he soon takes the meat and enjoys it. Then occasionally to change his food, you can give him fish. But if you feed fish too frequently he will insist on it and refuse the meat. Cockroaches are another article he will enjoy very much. As the alligator gets larger he will eat mice and rats; these had best be killed

even after he gets very large.

Never prod him or poke him with a stick or other thing, and do not allow any one to tease or torment him; remember that kindness is appreciated even by an alligator, and you will not have any trouble in keeping him.

The difference between alligators and crocodiles lies mainly in the shape of the head. The crocodile has a narrow, triangular head; that is, it gets narrow toward the tip; while the alligator has a broad head, which is almost as wide at the tip as at the neck. The eye tooth, so-called, in the lower

jaw of the crocodile fits on the outside of the upper jaw when the mouth is closed, in a notch behind the nostrils; in the alligator, this same tooth fits into a pit or hole in the upper jaw, so when he closes his mouth you can not see this particular tooth. There are other slight differences, but these are the principal ones.

An interesting thing for you to observe will be your alligator's eyes; see how small the pupils of the eyes are during the day—just a mere slit. And then see how large and black and round they are at night. Also observe how beautifully his eyes and nose are arranged when he swims; the whole body is under the water and only the eyes and nostrils are above the water. Watch how he swims by using his tail as a paddle, the legs and feet being flat along the sides of the body.

The mother alligator builds a nest of twigs, mud and sand, into which she lays from thirty to sixty eggs; these are about two inches in diameter and about three and a half inches long. The nest is about two and a half feet high and may vary from four to eight feet in diameter. The eggs hatch by the heat of the sun, and as soon as the little alligators are hatched they go into the water. The mother alligator watches and guards her nest until all the eggs are hatched, as the fathers would eat the little ones, as do also birds and other animals. The young alligators are about eight inches long when they hatch, and weigh about two ounces. Their colors, that is the yellow blotches and bands, are very clear, but as the alligator gets older this color almost disappears, and then they seem to have but a single color—a dark brown. The color of the tongue is a pale pink; it is very soft. Notice how the alligator elevates his body from the ground when he walks.

DR. G. A. HINNEN.
Cincinnati, Ohio.

A Remarkable Golfer Dog

You have often heard it said of a man that he has golf in his blood, but to remark the same thing about a dog is indeed a novelty. The Fox Hills Club has such a canine in the collie Bruce. Of course, any intelligent dog can be taught a few tricks or to perform certain duties, such as carrying clubs, or tracing balls. Bruce's accomplishments, however, are of an entirely different order and inherent in him. Not one of the odd things he does on the links was taught. As a puppy he was found to have a special aptitude for life on the greens that came to him as naturally as barking or eating.

Several members of the club who have studied Bruce intently for two years or more declare that one or more of his ancestors were brought up on a big links, probably in Scotland, and that he is only handing down to New Yorkers the traits that are a part of him. He is the property of M. F. Smith, the club steward, who got him in the bankrupt sale of a big concern in New Haven. He was only a few months old at the time, yet his sister of the same age brought \$500 as a puppy.

He began at Fox Hills by keeping goats off the course. Not many strayed that way and few indeed now, for the Billies and Nannies know that he will chase them home, a full mile, if they wander upon the links.

The next thing he attempted was to drive unauthorized caddies off the greens. If a boy carries a bag of clubs, well and good; if not, it's back to the caddie house for him while Bruce is around.

The dog dearly delights to follow players over the links, but he cannot be induced to go with strangers. He knows nearly all of the 300 members and while he prefers some to others who play less frequently, he will go out part way with almost any regular. He lately took a dislike to a leading caddie and not even his master can make him go more than a hole or two with that carrier.

One of his latest leanings is toward the fair sex. Whenever a woman play-



er arrives, Bruce makes a straight line for the dressing room and waits there until she is ready to go out.

He keeps his eye on the ball wonderfully, but never his teeth. He never picks up a ball, although he invariably



THE FOX HILLS COLLIE.

runs ahead to within a few feet of it and in that way has proved especially useful.

When the players are driving, he keeps at a respectful distance behind or at one side, bounding forward as soon as the stroke is made. When the start is made he crouches on the wooden steps in front of the first tee with only his nose in sight, for he understands that it would never do to get in the way of the ball. As soon as he catches up with the ball he lies down obediently near it, waiting until the players come up.

So many miles does he run over the grass every day that he keeps himself as thin and as gaunt as a wolf. Around the club house he is correspondingly intelligent and sensible. About the only way to get a good picture of him is to snap him when he is asleep, and even then, the noise of the shutter awakens him causing him to slink out of sight without delay. Col. John J. A. Donohue, president of the club offered Mr. Smith \$100 for Bruce the first time he saw him, but the dog is not for sale.

—The American Golfer.



Become Acquainted With the Stars

BY HARRY G. LATHAM, ORIENT POINT,
NEW YORK.

No nature follower should neglect to make his acquaintance with those scintillating gems that nightly glorify the heavens—the everlasting stars. Flowers wither and fade throughout the summer, and most of the birds that estivate with us decamp to the south lands at the approach of autumn. Not so with the dimless stars. On the contrary, at the commencement of chilly nights, when all the bloom and splendor of the summer has yielded to the invincible will of the frost king, the real magnificence of the stellar concave

begins to appear, to remain until the spring returns.

After a day or a few hours in the woods or meadows with the birds and plants one comes home in the twilight. The resplendent after-glow has nearly vanished from the western skies—all the feathered songsters have silenced their lays and have sought the rest and quietude of their dreams. Flowers have nodded farewell to the daylight and are obscured by the gloaming. Nothing catches the eye but indistinguishable shapes and shadows, and it is unoccupied save for the guidance on the way.

How vastly different is it with the

dreamer of the stars! He looks up, and lo! A wondrous realm is revealed. In all their sublime majesty the constellations dance and glow in the deep depth of the darkened heavens. The eyes of the star lover stray to every extremity, embrace every object from horizon to zenith. Recognition, companionship, gleam in his face; those far off silent stars he has known long, and they never disappoint him; their beaming friendly faces never falter. No wonder he loves them!

He beholds in the starry domain a fairy world of mythological characters; each constellation represents some famous person or animal of ancient times. He sees Orpheus's magical harp, which recalls to him memories of the ill-fated hero and his beautiful Eurydice. The star-framed Argos is pregnant with recollections. Argos! Why the very name is magical! He dreams again of the famous voyage of those valiant, marine heroes through mystical, unknown countries and gloomy, tempest-tossed seas. In a blaze of glory the majestic Orion strides through the heavens, accompanied by his two faithful dogs. The star gazer remembers that this giant hunter was laid low by a beam from Diana, and then placed in his eternal home among the stars. Leo, Taurus, Gemini, in fact the whole gorgeous array of zodiacal constellations, are laden with incidents of times remote. The bold Perseus and lovely Andromeda become alive to him again, as he contemplates their images in the sky. He views the mighty Hercules and great Flying Horse; in short, each and every figure of the broad canopy above him has its wealth of legends to offer him.

Truly, to know the stars is a valuable accession to the nature lover. It is a fascinating pursuit, in which both profit and pleasure are stored in generous quantities.

Beginning with this number, "The American Astronomer," formerly published at South Framingham, Massachusetts, is merged into this department. The editor, William D. McPherson, will here continue his work.

Mr. McPherson is a lover of astronomy from the amateur point of view. He is regularly engaged in the publication of a daily newspaper. He has full appreciation of the real student and lover of this "grandest of sciences."

There's a Wonderful, Bright Star in the East.

Have you seen the wonderful bright star in the east that arises in the early evening in the first part of June? If not, you have missed one of the grandest privileges of human life, and you will miss more if you do not go and see it again and again.

It is the star of good luck to earth; it has always shone brightly when the best things have come to this planet. Its rays were clear and brilliant, and its twinklings, joyous, at the dawning of human intelligence in this Garden of Eden; they have been ever ready and have ever helped to scatter darkness when wisdom has rolled away the clouds of ignorance, when kindness has banished cruelty or realization has been the fruition of faith. The light born of a knowledge of it has been ever ready to scatter the darkness of superstition.

It has a long tale, could its light records of the past be read, of love overcoming hate, of freedom of thought annihilating bigotry, and of action superseding precept.

It has brought to the present, a God of the long, long ago; it makes possible a present heaven formerly postulated of a distant future.

We pass through the tail of light, streaming centuries long, every second of the year, and it brings us no evil—and no good, if we pay no heed to the light. We breathe an atmosphere that has been blessed by its benign rays for the good of mankind—and still, alas! no effect.

Altair is the name of this wonderful star. It rises during the first part of June at about nine o'clock in the evening.

"Altair!" you shout in surprise. "Why Altair is only one of the ordinary fixed stars. I thought you were

telling of something comet-like."

No. This is not a magazine of the "Oh, my!" museum order, but of "commonplace nature with uncommon interest." Altair need not be more emphatically specified than Antares or hundreds, yes, thousands of other stars that have been shining for ages—and as continuously as humanity's good things that have come not periodically but without intermission from above the stars. May they shine on evil becoming less and less, and on appreciation ever increasing. If you have missed their beauty and continued beneficence, all the greater your misfortune and the more urgent is the necessity that you hasten to make amendment of your thoughtless ways.

All hail, then, astonishing, beautiful, permanent Altair, and all others that rise in the east or circle the north.

The Heavens in June.

BY PROF. ALFRED MITCHELL, OF COLUMBIA UNIVERSITY.

When this is read, the most brilliant period of Halley's Comet for the year 1910 will be a thing of the past, and the comet will be each night becoming fainter and fainter. After it first appeared in the morning skies, it did seem as if we were to be doomed to disappointment for press dispatches of the comet being without tail were heralded. In spite of these ominous warnings, the comet appeared as a magnificent object in the morning skies, as the majority of readers well know, from having seen it with their own eyes. The interested amateur in looking to find it has learned a little of the disheartening trouble of a professional astronomer's life, the interference in work caused by clouds. As many readers know from bitter experience, it needed a deal of enthusiasm to get up morning after morning in the hope of seeing the comet, and then behold nothing for their pains but a bank of clouds. Bad weather throughout the country interfered greatly with observations in the morning skies, but putting together the reports from different observatories, we find that the comet was not in the least a disappointing one, and

it was just as remarkable as we had expected Halley's Comet to be. It has not been at any time as superb an object as the great comet of 1882, which in turn was not as magnificent as the comets of 1861 or 1858.

For the benefit of those who saw the comet and estimated the length of the tail, we give some reliable data for ascertaining its length. As is well known, the astronomer measures the angular length by the number of degrees subtended at the eye by two lines running out to the object to be measured. With a little practice it is as easy to estimate the angle in degrees as it is to guess at the height of a fence in feet. For obtaining a value of small angular distance, it is well to remember that the sun and moon are each a little more than half a degree in diameter. The distance between the extreme stars in the belt of Orion is close to three degrees. A more useful measure (since it may always be seen) is the angle between the pointers of the Dipper, which is a little more than five degrees. Though the tail was invisible on April 12 (mainly from being seen in a dawn-lit sky), a tail of 1° was seen on April 15, of 9° on the 18th, which had increased to 15° by the last day of April. On a photograph taken by Professor Barnard on the morning of May 5, the whole extent of tail was 20° . On May 13 a naked eye view of the comet from New York City showed it to have a tail at least 35° in length. If this had been pointing straight up from the horizon, it would have stretched more than one-third of the way to the zenith. The tail, though faint, was clearly visible, spreading out in a fan-shape till it stretched 5° across at the end of the tail. It was a magnificent sight, with the morning star Venus close by and very brilliant, and those who saw a comet for the first time will long remember this one.

Though the angular diameter of the sun and moon are about the same their real diameter in miles are very much different because the moon is so much nearer us. In the same way the length of the tail in miles may be ascertained when we know the distance in miles that it is from us. Early in May the tail was 25,000,000 miles long.

The prevalence of superstitious fear

in this year of our Lord 1910, with the daily newspaper ready to disseminate the splendid results of modern science, gives some inkling of the dread that these monsters of the sky must have caused in years gone by.

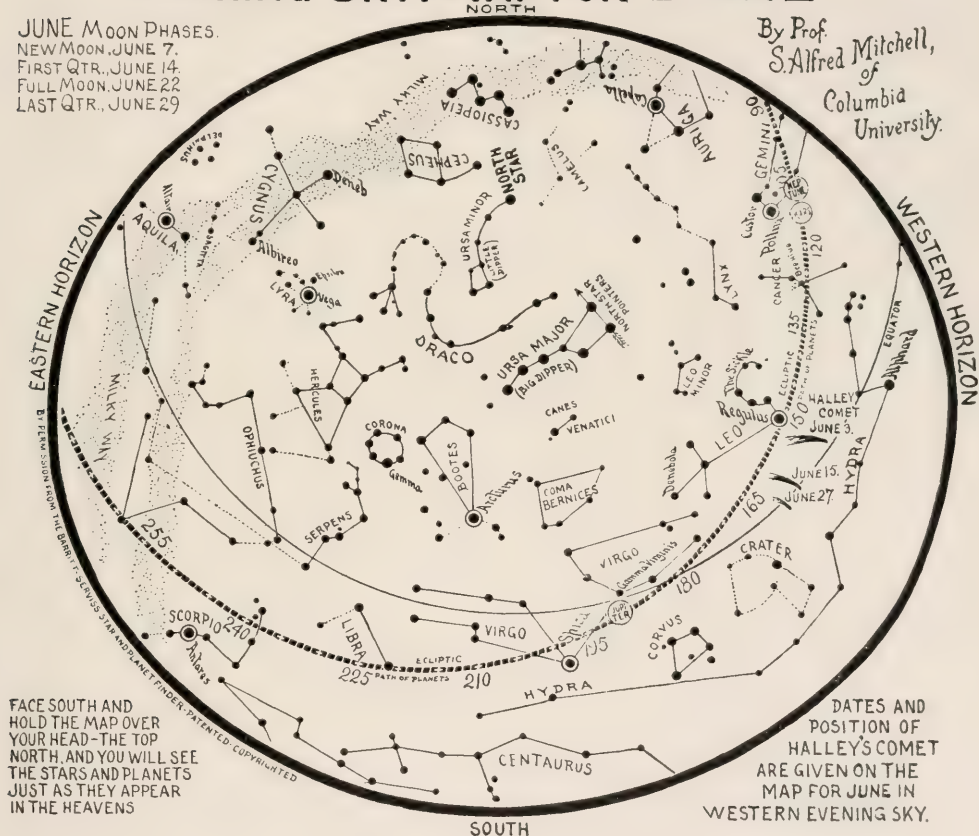
This is being written (May 14, before we pass through the tail of the comet on May 18), with the confident expectation that we shall be alive to tell the tale after that day.

carbon, together with the cyanogen band, the strongest in the whole spectrum. In addition the sodium lines appeared, but not so prominently as in Comet A, 1910. The strange behavior of the spectrum was that though the cyanogen band was strong in the head of the comet, it was lacking in the tail. Moreover, the spectroscopic test is an excessively delicate one, capable of detecting minute quantities of material. For instance, if a grain

EVENING SKY MAP FOR JUNE

JUNE MOON PHASES.
NEW MOON, JUNE 7.
FIRST QTR., JUNE 14.
FULL MOON, JUNE 22.
LAST QTR., JUNE 29.

By Prof.
S. Alfred Mitchell,
of
Columbia
University.



If the truth were wholly known, there was no danger whatever from the cyanogen in the tail. The composition of the comet and its tail is made known by the spectroscope. Early in May the spectra were of remarkable interest. Plates taken at Yerkes, Lick and Flagstaff observatories agree in showing a strong continuous spectrum with faint traces of Fraunhofer lines due to reflected sunlight, with strong bands due to hydro-

of ordinary salt were divided into a million parts, and one of these placed in a gas flame, the spectrum would display the certain badge showing the presence of sodium, two strong lines in the yellow part of the spectrum.

To harm life on the earth, the cyanogen would have to be mixed with the air in comparatively large quantities. The small amount of this poisonous gas in the tail as revealed by the spectro-

scope, and the extreme rarity of the tail compared with our atmosphere shows the utter absurdity of imagining injury to us. No doubt the comet in the evening sky will have presented as fine an appearance as it displayed in the mornings, and much of novel interest will have been learned in the fortnight before this is read.

Though the comet is getting fainter each night, it should be readily followed throughout June with the naked eye by those who know where to look for it. In fact the result of reliable estimations by Dr. Ebell show that the comet should still be seen with the naked eye nearly to the end of July. By referring to the map it will be seen that it is moving eastwards through the uninteresting constellation Sextans. The only bright star that it approaches is Regulus in the Sickle, which is 12° north on June 3.

During June the sun is moving eastward among the stars faster than the comet, and the angle between them is being lessened with the result that the comet sets earlier each night.

The numbers given for stellar magnitude of the comet is an estimate of the effect of the whole light of the comet on the eye. A sixth magnitude star is at the limit of vision for a keen sighted eye, and the comet will not be as faint as that till July 1. Those who follow the comet after June 10 will be bothered by moonlight, and the fainter portions of the tail will be lost to view on the sky illuminated by moonlight.

THE PLANETS.

The sun is at the summer solstice on June 22 at 2.49 a. m. Eastern standard time. In spite of the fact that the greatest number of hours of daylight occur on this day, the sun does not set latest.

Mercury is a morning star and will be visible toward the last an hour before sunrise from June 18 to June 25.

Those who observed the comet in April and May saw the bright morning star Venus. She has decreased in brightness since then, but is still a fine object. On the morning of June 4, she passes very close to the moon on the north of it. On the following morning Venus and Saturn will be so close together that it will be hard to separate

them by the naked eye, and they will appear in the telescope together.

Mars is still visible in the west in the early evening, but it is now very faint. Jupiter is a brilliant object toward the south in the early evening, slowly getting farther west each night. Its motion among the stars may be readily observed by watching its position relative to the stars in the constellation of Virgo.

Resource in the Love of Nature.

In the love of nature is another source of saving grace. Science is power. In the stores of human experience lies the key to action, and modern civilization is built on Science. The love of nature is akin to Science but different. Contact with outdoor things is direct experience. It is not stored, not co-ordinated, not always convertible into power, but real, nevertheless, and our own. The song of birds, the swarming of bees, the meadow carpeted with flowers, the first pink harbingers of the early spring, the rush of the waterfall, the piling up of the rocks, the trail through the forest, the sweep of the surf, the darting of the fishes, the drifting of the snow, the white crystals of the frost, the shrieking of the ice, the boom of the bittern, the barking of the sea lions, the honk of the wild geese, the skulking coyote who knows that each beast is his enemy and has not even a flea to help him "forget that he is a dog," the leap of the salmon, the ecstasy of the mocking-bird and bobolink, the nesting of the field-mice, the chatter of the squirrel, the gray lichen of the oak, the green moss on the log, the poppies of the field and the Mariposa lilies of the cliff—all these and ten thousand more pictures which could be called up equally at random and from every foot of land on the globe—all these are objects of nature. All these represent a point of human contact and the reaction which makes for youth, for virtue and for enthusiasm.—President David Starr Jordan in "Life's Enthusiasms."

The Nantucket Maria Mitchell Association.

A memorial observatory has lately been built at Nantucket, Mass., to commemorate America's first and best known woman astronomer, Maria Mitchell, who was born on the island of Nantucket in the year 1818, the daughter of an astronomer, William Mitchell. The building is a handsome one of brick, with copper dome, and houses a five inch instrument and a working library. It was erected, and is cared for by The Nantucket Maria Mitchell Association. Miss Mitchell, as a girl, learned astronomy from her father, and the two together spent many years computing for the U. S. Nautical Almanac. On the evening of October 1, 1847, she discovered a telescopic comet, for which she later received a gold medal from the King of Denmark. In 1865 she was called to Vassar college, as professor of astronomy and director of the observatory, where she remained for twenty-three years. In 1888, at the age of seventy, she resigned after a very successful career at Vassar, and was made Professor Emeritus. She removed to Lynn, Mass., where her family then resided, and where in 1889 she died. The Association has also bought for preservation the birthplace of Maria Mitchell in Nantucket, and is now engaged in raising an endowment of some \$25,000 for a research fellowship, so that the observatory may be put to a practical use. It may be of interest to note that Mr. Mitchell, father of Maria Mitchell, in 1835 was one of the first observers of Halley's comet on its periodic return, and that his place of observation was thereby raised to the rank of an observatory.

During certain hours in her Library work, Miss Mitchell had considerable leisure for study in which she was indefatigable. Her salary was supplemented by mathematical calculations for the United States Nautical Almanac, a work, in which her father and she was engaged for many years.

On December 17, 1831, Frederick VI, King of Denmark, offered a

gold medal to the first discoverer of a "telescopic comet." On the evening of October 1, 1847, engaged in her usual astronomical observations Miss Mitchell told her father she thought she had discovered a comet, but advised him to say nothing of it until they had observed it long enough to be tolerably certain. Mr. Mitchell, however, immediately wrote to Professor Bond, then Director of Cambridge Observatory, announcing the discovery. The same comet was noted by astronomers at Rome, in England and at Hamburg, but the priority of Miss Mitchell's discovery was admitted throughout Europe and in 1849 she received the medal.

In 1848 Miss Mitchell was elected to membership in the American Academy of Arts and Sciences, the first woman admitted to its rolls. Later she was elected to the Philosophical Society of Philadelphia, and among the papers sent to the Memorial by her family are honorary degrees conferred by several colleges. In 1857 she gave up her position as Librarian of the Nantucket Atheneum and made her first trip to Europe, where she was cordially received by astronomers, who not only opened their observatories to her, but welcomed her into their family life.

In 1861, a few months after the death of her mother, Miss Mitchell



ASTRONOMICAL OBSERVATORY
Built 1908

and her father removed to Lynn, Massachusetts, where they remained until she was called to Vassar College 1865 as Professor of Astronomy and Director of the Observatory. One of Professor Mitchell's students during

mental and moral perplexities of youth, and was lifted into a larger, clearer vision and stronger courage to strive for the best. The Observatory had a home atmosphere from the first, where for more than three years William Mitchell, Miss Mitchell's father, in his beautiful old age, was a benignant presence. Simple, open-hearted hospitality was as real a part of Miss Mitchell's life as was hard work and devotion to high scientific aims."

In 1888, after twenty-three years of service, she resigned her position at Vassar College; she was made Professor Emeritus, and offered a home in the Observatory for the remainder of her life. She preferred, however, to return to her family in Lynn, where, in 1889, she died.



BIRTHPLACE OF MARIA MITCHELL
Built 1790.



the early years of Vassar College speaks thus of her life and influence at the College: "In those early times, when the way was yet to find, Miss Mitchell was a formative power for high ideals and high standards of scholarship in the education of women. The story of her personal influence on her students can never fully be told. It lives in the consciousness of all who came within its touch. Incisive and trenchant of speech and with a keen sense of humor, she was warmly human. She belonged to a large family, and took a vivid interest in her many nieces and nephews and in all their interests, large and small; when she came to Vassar her large social nature took in her pupils with scarcely less vital sympathy. Many a girl went to her as to a mother confessor with the



MARIA MITCHELL



Astonishingly Great Interest in Aquarium.

The New York Aquarium had a greater number of visitors during the year 1909 than ever before, the attendance being 3,803,501, an average of 10,417 a day. These figures show that the Aquarium has a greater patronage by the public than all the other museums of the city, including the Zoological Park, combined, and 1,800,000 more, for the same period, than the New York Hippodrome, which has probably the largest attendance of any theatre in the city. These figures are unequalled by those of any other museum in the world of which statistics are available.—Scientific American.

The Dwarf Gourami.

BY WM. T. INNES, JR., PHILADELPHIA, PENNSYLVANIA.

An important and comparatively recent addition to the family of freshwater aquarium inhabitants is furnished in the dwarf gourami. This fish was first imported about two years ago by Mr. William P. Seal and is as yet very little known. If, however, my estimate of its value as an aquarium fish be correct, it will be a familiar friend in the course of several years. Like the Paradise fish, which I believe it will largely replace, it comes from the warm waters of India. Being of the same family as the Paradise fish, namely the Labyrinthici, or air breathing fishes, they have many points in common. Although they absorb some oxygen, as do other fish, from the water which passes through the gills, they gather their chief supply from the

air. This is done by occasionally coming to the surface and taking a little air into the mouth. At the same moment this is done, the former breath of air, now probably having most of the oxygen absorbed from it, is expelled through the gills. The air breathing faculty of this group of fish makes it possible to keep a large number of them in a small receptacle and plant life for them is not a necessity, since it is only necessary for them to be able to occasionally reach the surface of the water in order to secure the oxygen needed to support life. I would not, however, recommend for them an aquarium bare of plant life, for practically all fish like to swim among the plants and the beneficial effect of the plants on the water must in some degree be reflected in the health of the fish.

The dwarf gourami attains a length of about one and one-half inches. It is very alert in its movements and when occasion requires swims at great speed. The action is at all times graceful and pleasing.

The male is beautifully marked on the sides with alternating metallic blue and reddish orange stripes running vertically over a silver background. The dorsal, caudal and ventral fins are edged and spotted bright orange. The pectoral fins are transparent, and as these are the fins principally used in swimming, it is difficult at first to see what causes the fish to move about, the appearance being that it moves without effort of any kind.

There is a curious optical quality about the blue and orange stripes. The orange stripes are transparent and are most easily seen when the light is coming through the fish to the eye.

The blue stripes are opaque and are much more apparent when the light is reflected from the fish at an angle. According to the light, then, the fish may appear with orange bars, blue bars or both blue and orange. The colored edgings of the fins remain the same in all lights except that in transmitted light the color is somewhat brighter. A dark stripe also runs faintly through the eye.

In place of the stiff ventral fins of the Paradise fish the gourami has a pair of long, thread-like feelers or antennae. I am not sure of the use or uses of these appendages. It has been suggested that they are used to explore crevices in search of food. This does not entirely satisfy me, for in order to secure the food after discovering it, it would be necessary to either wrap the antennae about the food or use them as stirring sticks to bring the object from out the crevice, and from my observations I should not suppose them to be capable of such a performance. Although the antennae are very delicate in appearance they are easily moved in any direction and are quite tough. There is no record of their having been accidentally broken off. When the fish feels itself to be in danger it usually holds one thread forward and the other backward, as though to be on guard in all directions. My own impression is that these feelers are used for safety in very dark places. In any event they have the appearance of being very sensitive.

In external formation the female is to all appearances the same as the male except that perhaps the dorsal and anal fins are not quite as long. It is very easy to tell the sexes, however, as the female, although possessing the same colors as the male, is very much paler in every way. The male fish is somewhat more brilliantly colored from May until September than he is in the winter months.

In breeding habits the dwarf gourami is much the same as the Paradise fish. A floating nest is made on top of the water composed principally of gelatinous bubbles exuded from the mouths of the fishes. With Paradise

fish the nest is built entirely by the male, while with the gouramis the female helps in the work. A very interesting difference, too, is that the gouramis also add to the nest any bits of plants or floating objects that they can secure. It is quite an interesting sight to see them tugging away at the ends of decaying leaves and, as soon as they have secured a fragment, rushing with it with quick, darting movements to the nest. It is quite as entertaining as watching a pair of birds at nest building. I usually break up some of the fine leaves of *myriophyllum* for them. This seems to just about meet with their ideas of what building material ought to be. In a few days the female deposits the eggs in the nest and then the male drives her away, assuming the entire parental duties alone. At this period the female should be removed, for in a small aquarium the male is liable to kill her if she comes too near the nest or the young, his fear being that she will devour them.

Although I have frequently seen the eggs of the Paradise fish I have never been able to detect those of the dwarf gourami. They are no doubt very small. The young when first hatched, which seems to be in about two days in summer time, look to the naked eye like microscopic black tadpoles. For a few days they wriggle about upside down, the food sack being at the top. In the breeding of Paradise fish some experts favor removing both parents as soon as the eggs are spawned. I am not prepared to argue on the advisability of this, but in breeding dwarf gourami I certainly would not favor it. The young for several days are most weak and helpless. Some are constantly falling to the bottom. These receive tender care from the male fish, who nicks them up in his mouth and carefully places them back in the nest. In about a week the male may be removed and finely sieved daphnia fed the young. In spawning these fish it is advisable to use a receptacle in which the parents can easily be caught. They are very active and one is apt to knock the young about in the effort to catch

the parents. Only about fifty eggs are spawned at a time but they spawn every few weeks. Owing to their diminutive size for the first few weeks it is no easy matter to raise these fish, but to succeed is well worth while. It is my hope to eventually have enough to stock an aquarium with males only.

Besides being a beautiful and an interesting fish the dwarf gourami is a very useful inhabitant of any ordinary aquarium. It acts as a scavenger, rids the aquarium of the unsightly red worms that so frequently infest the bottom and which goldfish will not touch, and it adds variety to the inmates of the aquarium. Another point of merit is that it will eat any kind of food. I would recommend anybody to have one or two in every aquarium where the temperature does not at any time go below sixty degrees. I would prefer not having the water cooler than sixty-five degrees. This recommendation, however, is not immediately practicable as the fish probably cannot be had commercially for at least a year. The last quotation I heard on them was ten dollars per pair. This variety should not be confounded with the larger sort of gouramis. The large ones, although said by certain pet store proprietors to be harmless to goldfish, have been found by experience to be quite the contrary. On the other hand the dwarf variety is absolutely peaceable and will not harm a goldfish as small as half an inch long. I found the fishes to be very timid when in an aquarium by themselves, and inclined to be wild. Since I have had them in with gold fish they appear to be thoroughly domesticated and beg for food as freely as the gold fish do.

The Paradise fish, although handsome and interesting, has lost its popularity on account of its belligerent disposition. The dwarf gourami is more interesting, more beautiful and quite as useful as a scavenger and is positively safe to place with goldfish.

An aquarium is practical for any home, and of never failing interest. If intelligently cared for it is very beautiful.

An Unbalanced Aquarium.

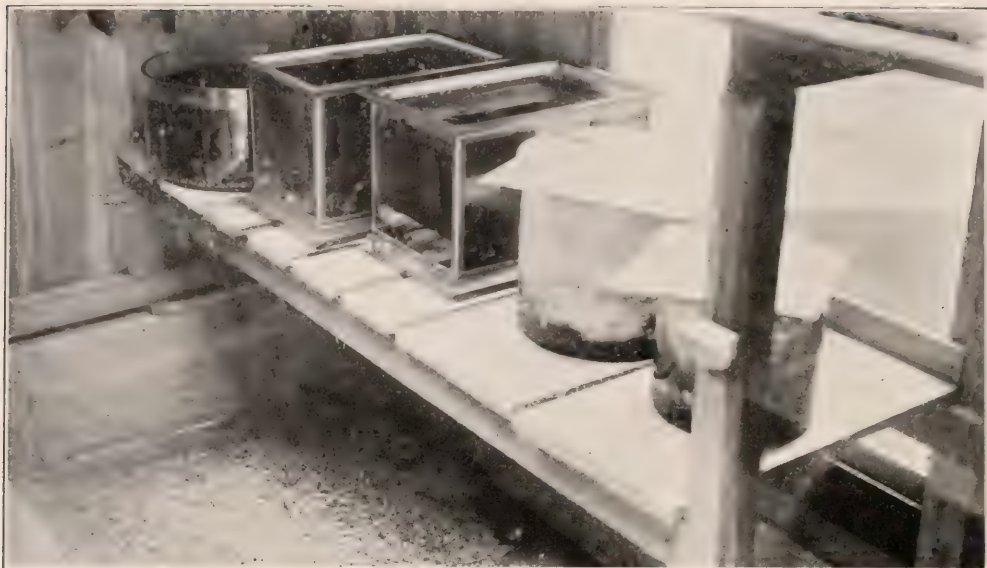
For several years I have been experimenting with balanced aquaria; that is, with some glass receptacle containing water and just the proper proportion of vegetable and animal life to be mutually helpful. If the balancing be carefully done, there is produced "a little world in water" that will remain in good condition for months or even for years without a change of water or of other contents. One such balanced aquarium has proved almost phenomenally successful, its plants and animals having thrived and flourished for almost five years.

But another with which I recently experimented proved a decided failure from the aquarium point of view, for it was decidedly unbalanced. In a single night every plant disappeared. The animal life was far too thrifty.

The aquaria stands in a corner of my greenhouse on a support under the main shelf. Below this secondary shelf is a deep tank, six feet long by four feet wide, made of galvanized sheet iron and sunk in the floor. This is usually kept filled with water and serves as a home for various frogs and turtles.

The chief of these, a sort of "monarch of all he surveys," is a snapping turtle that makes most of my young visitors say "Oh, my! Isn't he a big one!" As a matter of actual measurement he is about eight inches across his shell and 18 inches in length from tip of nose to tip of tail. His wisdom in comparison with that of the smaller turtles is in proportion to his size.

Late in the afternoon I left the drain plug out as I intended to clean the tank and to fill it with fresh water the next day. The big fellow did not intend to remain for even a night without being in water all over, and furthermore he likes a feast of aquatic plants for, as you probably know, the snapping turtle eats vegetable as well as animal food. That evening we found him in one of the small aquaria which he almost filled. It seemed astonishing that in his travels he hadn't broken the glass, yet he had not, but

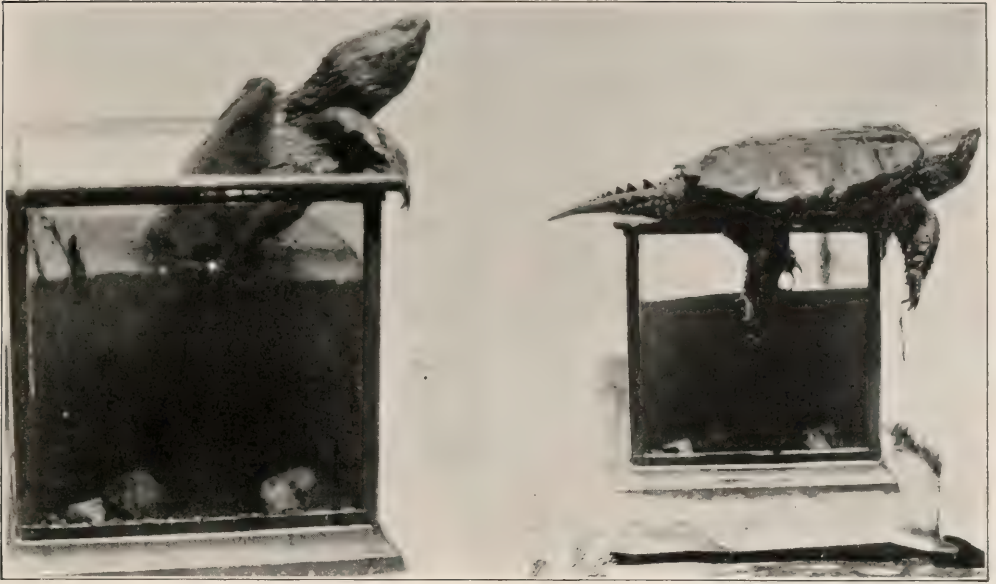


THE AQUARIA ON THE SUPPORT UNDER THE MAIN SHELF.

he had eaten every plant. As there had been several boys in the pet-house late that afternoon, I supposed that Snappy's new location was the work of some youthful joker. I said a word or two to myself about staying in the building with my boy visitors in the future. Then I lifted the turtle by



"FOUND HIM IN ONE OF THE SMALL AQUARIA WHICH HE ALMOST FILLED."



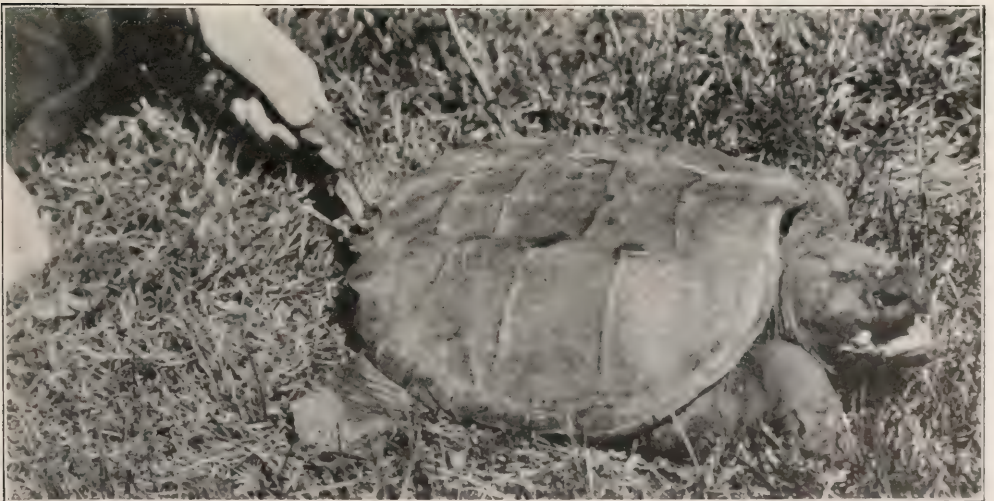
GETTING OUT OF THE AQUARIUM AT THE LEFT AND TRAVELLING OVER THE ONE AT THE RIGHT.

the tail, put him in the tank and locked the door for the night. Next morning he was back in the aquarium! How did he get there? Surely that wasn't the work of any of my boy visitors.

The question was perplexing. Turtles cannot fly and the shelf was directly above the tank.

By careful inspection of the shelf

and the posts we found that the turtle had climbed up the wire netting which formed the wall of an adjoining cage, this netting being nailed to the end of the aquarium shelf. The turtle had pulled the wire from the nails and forced his way upward between netting and shelf. Then in the narrow space (he must certainly have turned himself edgewise to do it) he



"LET GO OF ME. I WON'T GO PURGLARIZING AGAIN."

passed by two circular aquaria and entered the one that was best supplied with aquatic plants. He devoured every plant in that one aquarium on the first night. On succeeding nights, he visited three other aquaria in succession and from each he took all the plants.

I nailed the wire more firmly in place and he again forced it off, for a snapping turtle has powerful neck and legs. From his method of climbing the netting by forcing his "toe nails" into the wire, we called him "Old Lineman" because he reminded us of a lineman climbing telegraph poles by aid of spurs on his feet. After he had torn off the wire for the third time, I substituted a strong board for the

netting and now "Old Lineman" is forced to stay in the tank. We have subdued his astonishing propensity to travel at night, but we have not learned how he knew what was on that shelf above him nor how he planned his circuitous and difficult method of getting there. "Old Lineman" has a knowing look. When I am busy about the greenhouse, I often see him lying in the tank and looking at me. It would not require much imagination to observe a twinkle in his eyes, as if he were thinking, "I'll outwit you yet." He has done it twice and it is not too fanciful to believe that he will do it again if he may. He evidently has long, long thoughts.





THE COMMON SUNFISH (*EUPOMOTIS GIBBOSUS*).

(Slightly reduced.)

Photographed from life by Dr. R. W. Shufeldt.

CORRESPONDENCE AND INFORMATION

Observations in Prospect Park, Brooklyn, New York.

New Brighton, Staten Island,
New York.

To the Editor:—

In the July number of *THE GUIDE TO NATURE* Mrs. Caroline M. Hartwell gives some interesting spring observations made in Prospect Park on gray squirrels eating grass, hornbeam catkins and the green fruit from a mulberry tree. Probably the "grey squirrel with his 'arms' full of green grass which he was industriously eating" did not devour it all but took some of it home for nest building purposes. When they can get it, the outer bark of the red cedar is used for making much of the nest.

It may be of interest to record what the Prospect Park squirrel eats later in the season, not including the peanut for which he is ever on the lookout and which is his perennial food. It is observed in this respect that the gray squirrels in Prospect Park are apparently not as anxious for peanuts as those in Central Park, Manhattan, which is pretty good proof that in summer at least they can find considerable else to eat.

On the fifth of last August I found a gray squirrel pulling off the still green fruit of a thorn (*Crataegus*) which was cut in two to get at the seeds. Usually only two or three were eaten and the remainder of the little apple dropped to the ground, apparently a very wasteful proceeding. Two other species of thorn had been visited for the same purpose, their fruit pulled off and the seeds eaten.

A flowering dogwood (*Cornus florida*) had lost many of its fruit, which had been cut open lengthwise in most instances in order to reach the interior parts.

The seeds of the hornbeam (*Carpinus*) are not easily reached owing to their position in the catkins. The ground beneath two of the trees was thickly strewn with the catkins, as well as some leaves, which had been gnawed off by the industrious squirrels. Some of the seeds had been opened and no doubt the others would be more carefully considered later.

Hickory nuts of two kinds had been gnawed from the trees, and usually about one half of the green and bitter husk and the shell of the nut within had been eaten away to get at the kernels. Even the big mocker nut was treated in this way, for the squirrels were evidently fond of the green hickory nuts and extracted the kernels quite thoroughly.

Black walnuts were also gnawed from the trees, and the very bitter outer covering partly removed in most instances. The walnuts, however, had probably been picked too green for the squirrels did not seem very fond of them, often casting them aside when only partly eaten into.

The acorns from several of the large English white oaks were evidently much prized, and they had been eaten into in the characteristic squirrel fashion; namely, by gnawing out a small portion of the cup so as to get at the soft basal part of the acorn. When acorns are plentiful, squirrels will test each one by making a small hole at the base for the weevil larvae they hope to find. If the acorn contains one, the larva is removed and eaten; otherwise the acorn is abandoned. Gray squirrels also eat gall producing larvae and, no doubt, what other edible insects they can procure.

Elsewhere we have found that the squirrels cut off the pitch pine cones in the summer as well as the riper ones

later in the season. They are permitted to drop to the ground but are gathered up later. So with the Park squirrels, much of their apparent wastefulness in dropping seeds and nuts to the ground is not a permanent loss to them, but the fruits of their toil, as well as those of the tree, are considered and well taken care of.

WM. T. DAVIS.

The Purely Practical.

Pagosa Junction, Colorado.

To the Editor:—

Your article in regard to people not being able to separate a love of nature from revenue or understand a motive in which cash does not tip the balance called to mind the worst stab I ever got. It is a good joke, however, and may be worth putting in type and I will, therefore, tell it.

In a sparsely settled country we had the only aquarium in a radius of a hundred miles. A good motherly old lady having heard of "the wonder" came to see it. The aquarium contained a collection of small sunfish and bass. After being seated and adjusting her spectacles our visitor gazed at the fish a few moments and remarked, "Well, now, that is just fine. I am going to have William (her husband) get one right away. How often can you get a mess out of it?"

Very truly yours,

H. A. ROGERS.

Number of Plunges for a Bath.

Brooklyn, New York.

To the Editor:

I was astonished to see how many plunges a water thrush made during a single bath. Thinking he must have already ducked his head and fluttered his wings twenty times or more, I began to count, and he added thirty-two plunges to the uncounted ones.

Whenever I have seen a phoebe bathe it has been by one quick dip from his perch, returning immediately to it, repeating the dip a few times.

Sapsuckers came frequently to a tree whose trunk they had already riddled. They seem to drink the sap easily from the little holes, but some sap was

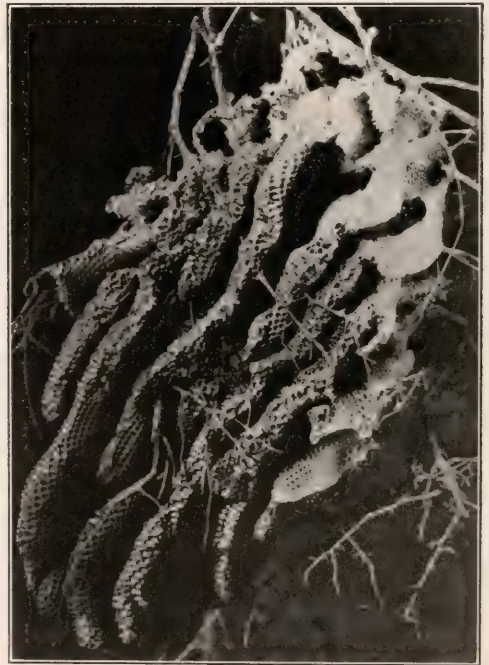
streaming down the trunk. This the sapsuckers did not secure so readily, but managed it by laying the side of the bill close against the trunk, running the bill slowly downward over the wet surface, probably sucking in the liquid at the same time. The only other bird I have seen take any notice of this flowing sap is the ruby crowned kinglet. He seemed to enjoy it exceedingly, many times standing on the trunk to eat or drink the sap, and sometimes fluttering in the air close to the holes, without lighting.

It is interesting to see how careful sapsuckers, downy woodpeckers and brown creepers are not to soil the trunks of the trees with their excrement.

CAROLINE M. HARTWELL.

Honeycomb on the Branch of a Tree.

The accompanying illustration shows comb made by honey bees on the branch of a tree on Sugarloaf Mountain, about seventeen miles from Boulder, Colorado. The photograph was sent by Mr. C. H. Howard.



THE HONEYCOMB ON THE BRANCH OF A TREE.



Incorporated, Massachusetts, 1892.

Incorporated Connecticut, 1910.

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From the Charter of Incorporation: "The purposes for which said corporation is formed

are the following, to wit: the promotion of scientific education; the advancement of science; the collection in museums of natural and scientific specimens; the employment of observers and teachers in the different departments of science, and the general diffusion of knowledge.

FROM THE BY-LAWS.

Article No. 14. "Any permanent gift or fund may be placed in the hands of the Stamford Trust Company of Stamford, Conn., or any other trust company now organized and doing business in the cities of New York or Boston. The earnings of said gift or fund shall be paid at regular intervals, as may be specified, to the Board of Trustees."

Contributions.

"Dream of Arcadia"—an engraving by James Smillie from the original picture belonging to the American Art-Union and included in the distribution list 1850. Presented by Mrs. Walter M. Smith, Stamford, Connecticut.

A collection of beetles, beautiful and well mounted, from the Reverend Richard Oertel, a Corresponding Member of The Agassiz Association—R. No. 1, Pleasant Dale, Seward County, Nebraska. Mr. Oertel desires to exchange beetles and microscopical mounts with other members of the AA.

Passe partout mounts of pink and white Scotch heather and of edelweiss from Switzerland, from Miss Elizabeth H. Hale, 10 Saint Charles Place, Brooklyn, New York.

Several marine specimens of special interest from Mr. Benjamin F. Palmer, Sound Beach, Connecticut.

Fragments of Indian Pottery, collected locally, by Mr. Isaac Ferris. Also teasels and other natural history specimens.

TO OUR MEMBERS.

The Agassiz Association is an aggressive, go ahead, working organization. It must never rest on what it has done, but always seek to do more. It must never lose sight of the "Purpose" expressed in its charter of incorporation, that PURPOSE being "the promotion of scientific education."

This makes our existence and YOUR membership mean something, for yourself, for other members and for humanity. We have accomplished much in the last third of a century, but more remains to be done. I have pledged my life in loyalty and enthusiasm to its work. I am faithfully and efficiently assisted by members of my family whose zeal and devotion to the great cause are no less than mine. We are devoting all possible time, that can be spared from other duties, to this great work, without pecuniary remuneration or the expectation of it. The Board of Trustees (seven) and the Council (about forty) have been faithful and devoted to every project for the advancement of the AA. Many of our

Members and Chapters have done zealous work. From every member we ask for scientific, educational and financial co-operation.

For these threefold points we want:

1. That you resolve in this early part of nineteen hundred and ten to learn more of nature either by experiment or observation, and that you plan to do something positive and definite. "Seeing things" in general and enjoying rides on country roads is not enough. Plan now to do better work in your garden, the fields, with your pets, or to make more systematic observations among your favorite plants, among the special animals that interest or attract you, or with any form of inanimate creation that may come within your purview, however limited that may at first appear to be. The round of the seasons has begun for you. Do not let the months go by unimproved. You will not live them again.

2. Benefit not only yourself but others. Do not be selfish in your interest. The joy is not divided by giving joy to some one else. It is multiplied. If you know some fact of nature that interests or uplifts you, tell it to the rest of us. Remember that our primary object is the promotion of scientific education. "To see something," says Ruskin, "and tell what it was in a plain way, is the greatest thing a human soul ever does in this world." Note that he says "in a plain way," and resist all temptation to imitate the famous definition of the word "change":—perichoretical synechy of pamparallagmatic and porroteroporeumatological differentiations and integrations." We want nothing of that kind. "In a plain way."

3. To be a Clearing House for observations costs money for engraving, printing and correspondence. Increase the income by contributions, new memberships, formation of Chapters or subscriptions to our official magazine, *THE GUIDE TO NATURE*.

* * * * *

This is the critical year for great things. We are settled in Arcadia: the work is now before us. *THE GUIDE TO NATURE* is becoming established and widely known. We want to extend its

influence. We want it to be better.

* * * * *

We want your Report. We want to know what you have been doing and what we can depend upon you to do, for yourself, for others, for nature, for humanity, through our beloved AA.

Fraternally yours,
Edward F. Bigelow.

The Work of the AA.

The Agassiz Association is the oldest, most extensive and most effective organization in existence for introducing young and old to the works of Nature.

We live so rapidly, even the children are so affected by a similar zeal for haste, that the candle is burned at both ends, and we die before we need. There is nothing, unless it be music, especially when pursued by the performer himself, that is so restful, so inspiring, as even a superficial study of Nature. It is not alone the physical exercise that is beneficial, nor the exposure to the sunlight and the fresh air; it is the change from the hurry, the noise and the bustle, the constant struggle and contention, to the calm contemplation of a weed, a stone, a bit of moss from the side of the "foot-path way," while the blue sky bends over, the white clouds float lazily beneath, and the sun and the breezes make innocuous the microbes of strife and selfishness.

No human being is educated until he knows somewhat of Nature, though it be ever so little; and no child's education is well begun until he knows at least as some do not know, that there is such a thing as Nature.

The well-educated man, with even a slight knowledge of Nature, is not only good company to himself, but he is never lonely. Without some similar interest aside from the daily struggle for bread, each human being is the loneliest, the weariest and the most unhappy of unfortunate creatures. We have no ability to reveal ourselves to one another; we are always alone, even when in the presence of the most beloved. There is an inexplicable influence in the apprecia-

tion of Nature that consoles the troubles and relieves the weary. Thoreau touched the quick when he said, "I am no more lonely than a single mullein or dandelion in a pasture, or a house-fly or a bumble bee."

Every one of us—the busiest, the most careworn and the least, has a longing for something beyond and aside from the daily grind for mere existence. A wealthy broker in New York has a pipe organ in his library, whose walls are of extra thickness so that the music may not annoy the neighbors, and at the organ he finds relief and true recreation. That such music is a delight, and a means of mental and nervous renewal, the lover of music will understand. But while we all may imperfectly appreciate the fact, every one of us may, without hesitation, adopt a study of Nature, feeling certain that it too will renew, re-create and bless.

The growing child is no exception. He must be supplied with some way to employ his surplus energy, of which he usually has a goodly amount, or its expenditure may assume the form of trouble and expense for the guardian. Children take naturally to the fields. They will manifest a wholesome interest in Nature, if they have a little intelligent guidance at the start. To feel that a book, a magazine, or still better, a living person, may be consulted, adds much to the pursuit, and makes the results more valuable to all concerned. Few, especially few young folk, are in a position to begin the study of Nature entirely alone and unaided. They must have some authority to which they may appeal for help, encouragement and advice.

The AA aims to give the student the aid that he will need, after it has started him in the pure and pleasant ways of science. Remember your own childhood and youth, and the influence of the out-door pursuits and objects of recreation that you may then have had, and help us to pass similar objects onward to the perhaps less fortunate young folk of to-day.

Tributes to Professor Alexander Agassiz.

The death of Professor Alexander Agassiz (who gave the permission to The Agassiz Association to use his father's name) was briefly noted in our last number. The following tributes to the great scientist and business man will be of especial interest to our readers:

IN UNIVERSITY, SOCIETY AND BUSINESS.

BY MAJOR HENRY L. HIGGINSON.

He always took deep interest in the University from the beginning, helped it in various ways, and had very distinct notions of what should be done in the way of education and development.

His life was very simple and easy, and he saw a good many guests at his own house and at other places, and was a great favorite in society—indeed his presence was enough to make any dinner-party a success. All this while he worked over the Calumet Mine, going there twice a year and often more, passing a week or ten days, following each development, ordering new machinery when necessary and, in short, guiding the work. This was all done with the advice and assistance of his brother-in-law, Mr. Shaw, and, indeed, these two gentlemen developed a great property and made it a wonder of safety and good management. To the end he was as simple in his ways and as kindly and affectionate in his greetings to old friends as a man could be, and the change from the boy to the man often did not appear at all.

A nobler, higher or more useful life no man ever lived, and withal he has kept the very warm respect and affection of his classmates and his numberless friends.

THE DEVELOPMENT OF A LARGE MINE.

BY COLONEL THOMAS L. LIVERMORE.

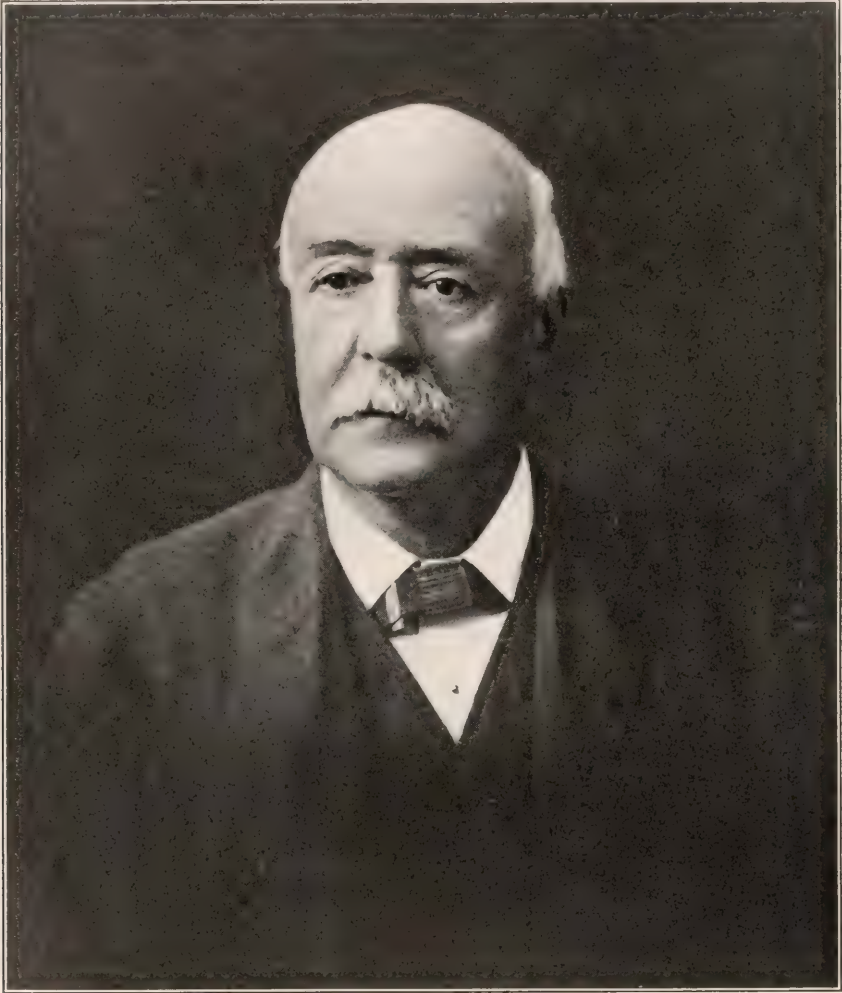
During his career he not only developed the largest and most profitable mine in the world's history, but also achieved greatness as a geologist, an engineer, a business manager, and the molder of a contented, prosperous and orderly community of about forty thousand souls, which during his time grew from a single cabin in the wilderness to its present proportions. At the time of his arrival the primeval forest covered the field of his future work and nearly all the remainder of the Keweenaw peninsula—the northerly extension of the state of Michigan into Lake Superior. From the site of the Calumet mine it was ten miles to the nearest settlement. His interest in the venture being enlisted through his supervision of it, he soon undertook its management, and, taking up his abode in a log cabin with the workmen, he threw himself into the work with all his energy.

NOT A POPULARIZER OF SCIENCE.

BY MR. FRANKLIN B. SANBORN.

The father had found unusual advantages in his European education: his mission was to popularize science and arouse enthusiasm. Our classmate had not that apostolic function;

In his studies and quests, in this respect he traversed near and distant seas, and spent years of patient, practical, useful investigation. Harvard has special reason to honor his memory. A graduate and a Fellow of the College, he had her interests at heart and



PROFESSOR ALEXANDER AGASSIZ.

but he bore the stamp of Swiss energy and education, counteracting, as his father did, the provincialism of New England, and the coldness of the learned class amongst us.

AS TRAVELER AND INVESTIGATOR.

BY HONORABLE JOHN D. LONG.

Like his father he sought the truths of the physical world and made them also subservient to the uses of life. When I was in the navy I saw a good deal of his work in connection with the culture and development of fish.

added to her crown of glory. Personally, he was a delight—student, scientist, gentleman, benefactor.

BROAD AND YET A SPECIALIST.

BY PROFESSOR EDWARD S. MORSE.

Alexander Agassiz was a man of rare type. His illustrious father covered the entire realm of the animal kingdom, illuminating here and there; Alexander concentrated his attention on special groups and gave the most persistent and profound study to them. With all this specialization, he had a broad conception

of the universe; his penetrating discussions and extensive memoirs on the formation of coral atolls, his monograph of the echinoderms, his many contributions to the aculephs and to the embryology and early stages of other groups will give him an enduring fame. With every temptation to lead a life of ease, he was one of the hardest workers among naturalists, and his magnificent support of the great museum founded by his father, makes him one of the greatest contributors to the University.—The Harvard Crimson.

Nearer to Nature.

We take people of all ages NEARER TO NATURE.

The Agassiz Association has a membership in all parts of the world, of all ages, of wide range of talent, of all degrees of wealth or the lack of it. Every one is animated by the single purpose, NEARER TO NATURE.

The child reports upon drawings of leaves, or the planting of seeds in a pot of earth; the man sends us drawings of centrosomes or he plants thousands of nut trees. We have members actually doing these things and hundreds of others equally diverse. All are trying to get NEARER TO NATURE.

THE GUIDE TO NATURE in describing the rasping tongue of a snail or telling about digging out the remains of a mammoth; of caring for a bird, or building a palatial home at the seashore, is merely getting NEARER TO NATURE.

In our advertising columns may be found offered for sale a country estate, the lumber for a house, the lens for a camera, a treatise on an animal, a plant to set out, or a mineral to study. All are means of getting NEARER TO NATURE.

We do not scatter our efforts; we concentrate on a single idea; we work faithfully on one principle—getting NEARER TO NATURE.

Our members are workers. They include some from the kindergarten, some who are farmers, housekeepers, professors, presidents of great universities—everybody. Our membership encircles the globe. In the mail come reports from Maine, New Mexico, Japan, New Zealand, and the next street.

All are trying to get NEARER TO NATURE. And the cause is advancing.

Cooperation Invited.

Can there be work more important, surer of results, than to set forth the interests and beauties of this natural world for the benefit of associates and successors?

You believe Browning was right when he said, "God must be glad one loves His world so much".

Then help The Agassiz Association in showing the worthiness of that love—of inspiring and increasing it.

The Acton Vale A Chapter.

On our roll there are twenty-one members. Here is a resume of the subjects discussed during the year.

A paper was read on appendicitis, its causes and the probable use of the appendix. Reference was made to the article which appeared in the December, 1908, number of THE GUIDE TO NATURE. Strange as it may appear, one of our members had to undergo an operation on that account which fortunately was successful.

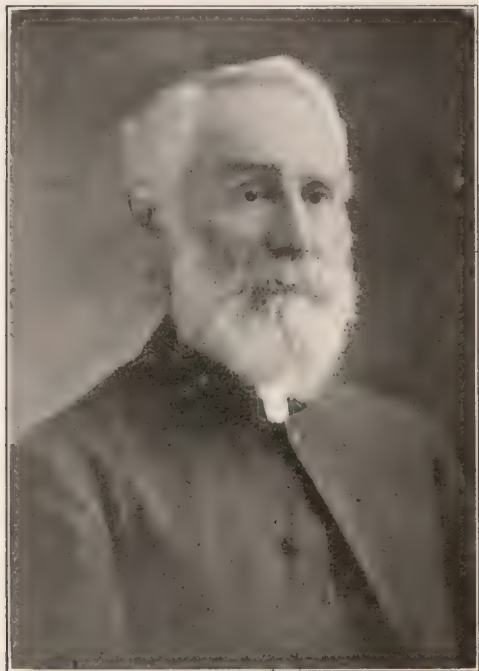
The new Arcadia at Sound Beach, Connecticut, the home of The Agassiz Association, was pleasingly brought before the members and they evidenced much interest in it.

We had from the Reverend Leopold Massicotte an interesting paper on the Infusoria, or microscopic animalcules, which abound in the bottom of the ocean and of which the chalk formation is nothing but their remains.

The President of the Chapter gave an introductory lecture on mineralogy which elicited a pleasing discussion. He also presented a paper on the Ephemeridae or shad-flies which live only from six to twelve hours after the attainment of their perfect transformation; but have time to lay their eggs on the top of the water, the eggs sinking to the bottom where they hatch. In addition he gave two papers on entomology; the first being on the eyed elater (*Alaus oculatus*) or velvet spotted spring beetle which has a large dark spot on each side of the prothorax, looking like two large eyes. The specimen was one and one-half inches long. The second paper was on a specimen of one of the largest beetles to be found in Canada, belong-

ing to the Dytiscidae. It is two and three-eighths inches in length and seven-eighths of an inch in breadth.

The Secretary, Mrs. L. C. Wurtele, gave the members an instructive paper on the mosquito (*Culex pungens*) which was followed by much discussion.



THE REVEREND LOUIS C. WURTELE, PRESIDENT OF THE ACTON VALE A CHAPTER.

On July the twenty-eight, Mr. E. R. Tanner, manager of the branch of the Eastern Township's Bank, Acton Vale, having just returned from touring through England and the continent, gave the members an interesting and most enjoyable account of his trip which was appreciated.

Mrs. Louis Roy read an article on the ancient animals of Alaska which elicited quite a discussion.

Besides the above papers the members were pleased with accounts of the kangaroo, the chipmunk, the cat and the whip-poor-will (*Antrostomus vociferous*).

We are deeply regretting the removal of two of our most active and interesting members, Mr. and Mrs. Louis Roy,

who are to take their home in a new field.

Louis C. Wurtele, President.
Isabella Wurtele, Secretary.

Acton Vale, Quebec.

The Gray Memorial Botanical Chapter of the AA.

The officers are as follows: President, Miss Pauline Kaufman, New York City; General Secretary, Mr. Charles C. Plitt, Baltimore, Maryland; Treasurer, Miss Emma E. Laughlin, Barnesville, Ohio.

Besides the three officers, president, general secretary, and treasurer, the Chapter elects annually two members to serve on the Executive Council. This year Miss Fletcher, Westport, Massachusetts, and Mr. Webb, Garrettsville, Ohio, have been elected.

The Chapter has its vicissitudes. During the past year it has lost ten members, nine through resignation and one through death. During the same time only two new members have been admitted.

The death of Mr. James A. Graves of Susquehanna, Pennsylvania, is deserving of notice. Mr. Graves was not only one of our most valuable members but was one of the oldest, having been with the Chapter since its formation. In number of years, too, he was our oldest member, having at his death entered upon his eighty-second year. The Chapter, recognizing his worth, gave him a little surprise on his last birthday, each member sending him a birthday card, and the Chapter a little print.—Charles C. Plitt, General Secretary.

The Mount Bluff Chapter.

ISLAND POND, VERMONT.

Mount Bluff Chapter was organized a year ago, with a membership of twelve, a greater or less degree of enthusiasm on the part of the members, and a vast amount of inexperience.

Because of our inexperience we did not decide on any definite line of work, leaving each member to map out and follow her own course of study. Thus one member took flowers, another ferns, another leaves of forest trees; one who was planning a summer vacation at Old

Orchard Beach took seaweeds; two specialized on birds and one on the notation of bird songs. It all looked very promising, but the result was somewhat disappointing.

The member who was especially interested in ferns, and would have been a splendid working member, has, on account of ill health, been unable to do anything. Those who took flowers for their subject made neither notes or collections, nor did they attend any of the chapter meetings. The member who took bird notation has left town, as has one of those who were to study flowers; and neither of these members have made any report, although they were specially requested to do so. Therefore the work actually accomplished narrows down to this:

1. We have learned the necessity of having a definite work, and have also learned "How *not* to do it."

2. During the last year we have held one general field day; a picnic on the Island which gives its name to our village. This was greatly enjoyed by five of our members. The others were not present. Smaller parties of two or three have been out for walks and excursions, and I think an interest has been developed which should bear fruit in good work this year.

3. Through the efforts of two of our members who are connected with the library trustees, several books have been added to the Public Library this year, and we plan to continue this from year to year.

4. In the line of actual accomplishment, we can not make a large report this year. One member has secured the nucleus of a herbarium; another has a small collection of seaweeds; another has kept a bird census, cataloguing forty-nine varieties that have been under her own observation in and about the village. (This is exclusive of the English sparrow, which Henry Van Dyke classes as 'a little beast.') Field notes of the habits of birds, and notations of a few bird songs have also been kept, so has a partial record of flowers. No work in the way of collecting insects or minerals has been undertaken, but a small collection of shells has been made.

The membership list revised to date is

1. Mrs. M. T. Sadleir, President.
2. Mrs. F. A. Elkins, Vice President.
3. Mrs. John Wright.
4. Miss Leta J. Eaton.
5. Mrs. C. S. Foster.
6. Miss Mary A. Lee.
7. Mrs. L. N. Moody.
8. Mrs. P. Dussault.

Leta J. Eaton, Secretary.

(The above report is worthy of careful study by our members. While it shows an immense amount of work done, the secretary apologizes for not doing more. She and her associates evidently realize the great extent and importance of AA work. With this official report were interesting personal reports from Mrs. F. A. Elkins and Mrs. M. T. Sadleir.)

International Y. M. C. A. Training School Chapter.

. . . SPRINGFIELD, MASSACHUSETTS. . .

Officers: President, F. S. Wright; Vice-president, L. P. Dittmoxe; Recording Secretary, H. W. McQuin; Corresponding Secretary, E. Horsfield; Treasurer, A. Lockley.

Our Chapter has been organized on about the following general basis: the membership is limited to fifteen, it being found that this was as large a group as could profitably work together on any one topic. Within this group there are several small sections composed of those who have special interest in some particular phase of nature study, for example, the bird enthusiasts are four. The general plan is to have these groups work more or less independently coming together at least twice a week in what we term our class room sessions for reports from the different sections or for general consideration of some topic in which all are interested. It has been the policy also to secure as leaders for such meetings several from outside the membership who are prominent in connection with some phase of natural science.

In the matter of field trips it is the policy to take at least one each week, generally on Saturday mornings, but many other trips are taken by individuals or by small groups in pursuit of

their particular interests. These trips are frequently in charge of some one outside of the membership who is prominent in connection with such work. One of the pleasing modifications possible in our local situation is that of trips by canoe during which it is customary to spend one night in the woods thereby introducing the ele-



FAITHFUL WORKERS IN THE INTERNATIONAL Y. M. C. A. TRAINING SCHOOL CHAPTER.

ments of camping besides coming into very intimate touch with nature's laboratory.

A beginning has been made in the matter of most desirable collections, and the interest manifested by the members in adding to and displaying this collection is very gratifying. Some books have been gathered, in all there are about twelve now secured by the Chapter. These in addition to facilities in the science library of the city are a reference source of great value. Of course we have two copies of *THE GUIDE TO NATURE*, which is a welcome monthly visitor.

As to the actual work done during the year the following summary may be representative:

Astronomy. In this there have been ten class sessions with one special lecture on "The Religious Use of the

Stars." Frequent observations have been made with field glasses and several nights with the three inch telescope of the local Technical High School.

Geology. In this there have been six class room sessions and four organized field trips, together with many less formal expeditions. The local geological structures afford excellent opportunity for this study, and a collection of twenty-five representative local specimens have been made, together with several others contributed by friends in other portions of the country.

Insects. This has been given five class room sessions with special emphasis on mosquitos and a more intimate study of moths with special attention to *Samia cecropia* of which a few local cocoons were secured and several dozens transported from the West. These were distributed to members of the Chapter, daily observations were made and notes, photographs and drawings were taken by way of record of developments. Finally several matured specimens were mounted, which is the beginning of the collection.

Trees. On this there have been twelve class room sessions with fifteen field trips. Chief attention has been directed to the winter buds, the foliation, flowering, description and identification of trees, collection of leaves, etc. Thus far the chief attention has been given to the oaks, poplars, birches and evergreens.

Indians. On this topic there have been several talks and papers especially on local history, together with several visits to former camp sites, steatite quarries, and other traces of Indian occupation, and as a result of these trips a beginning has been made of a collection of artifacts, etc.

The plans for the coming year propose the following additional topics:

Pond life. For this purpose two aquaria have been secured, and are now being utilized in the study of special topics.

Flowering plants. In addition to the ordinary methods of distribution and identification special attention will be

given to plant physiology for which purpose the use of a high power microscope has been secured.

Sowing of Seeds and transplanting. Considerable interest is being taken in bringing within easy reach a greater variety of plants and trees so that several species have been transplanted and the seeds of others secured.

Normal work. As a means of still further developing personal interest, as well as for the spread of nature study, several groups of boys have been organized in the various churches. Each group, under the leadership of one or more of our members, spends a large portion of their Saturdays on tramps, and trolley trips, thereby introducing the lads to this interesting and profitable hobby.

Report of "Park Life" Chapter.

BY ROBERT E. YOUNG, JR., SECRETARY,
DUBUQUE, IOWA.

(Continued from last month.)

Under the painstaking direction of Doctor Bigelow, for whom we all have the highest regard, the lowlands and the uplands were studied. Pictures of the denizens of these places were beautifully shown on the stereopticon screen, while the boys lounged on Mother Earth herself, (and yet none caught "cold" from it). The stars and the heavens were studied from the Mississippi's high bluffs, while learned men told us how reverently the ancients regarded these glories of the Creator, and some of the old spirit was infused into us. The boys lay flat on their backs, next to old earth, and gazed upward with awe.

Doctor Bigelow also instructed us about bees. If all "Park Life" was not interested in his talks, and in the exhibition hive that he had with him, it was not the speaker's fault. Before he spoke we all had an aversion to the bee, because of his sting; after, the smallest boy would allow dozens of the little animals to be shaken into his hand, for with knowledge comes confidence.

Agriculture in many of its phases was explained. For could we not go into the garden and verify the speak-

er's statements. We can now with confidence care for corn, grains and garden truck, for do we not even know the enemies that attack them. We do. WE HAVE SEEN THEM.

In conclusion let me mention our visit to the State Fish Hatcheries, at Spring Brook, Iowa, some forty-five miles from Dubuque. This was one of our most interesting excursions. It was a delightful treat to be taken through the cool tank-rooms, and to witness the progress of the fish from the tiny egg to the mature and beautiful water dwellers themselves. Many of the boys declared that their greatest desire was to fish in a stream full of trout such as we saw there.

Many men of national reputation addressed us, and every member is grateful to Professor Horchem for taking us into this great movement; and now that we are members of The Agassiz Association we look forward to still happier experiences with that association.

Laboratory Course in Elementary Botany.

WITH 125 ILLUSTRATIVE SPECIMENS.

Correspondence courses in botany have been carried on at intervals for the Agassiz Association by the present instructor since the winter of 1889, and have been taken advantage of by students from all sections of the United States.

The present course is based upon the earlier ones in method, but is more elaborate, and is designed not only to supply a good working basis of botanical knowledge for individual students, but in addition, to prepare those who intend to teach. It is also adapted to persons of all ages who wish to become more familiar with common wild flowers and ferns, and to know something of their varied forms, relationships, and life histories.

The method of the course is to lead the student to see and think for himself. To this end, the text matter is reduced to the smallest compass practicable, and the laboratory work with the plants is correspondingly increased. Thus are combined the advantages of individual investigation and the check of personal instruction.

The student receives a set of 125 specimens, dry and in fluid, as material for laboratory work. Fifty of these are type plants, representing as many different natural families of ferns, fern allies and seed plants, arranged in ascending order of development. These are mounted upon standard herbarium sheets, and may be used for reference indefinitely, since duplicate parts for analysis are supplied. Of the remaining seventy-five specimens, some are mounted upon herbarium sheets others are in envelopes, and the balance in preserving fluid. The dry material illustrates a wide range of plant form not shown in the type specimens, and the material in fluid is mainly duplicate flower and fruit parts of certain of the type plants.

The lessons consist largely of questions, the answers to which are obtained by examination of the specimens. A few of the questions are designed to bring out the student's understanding of the brief text matter. Through these questions, the principles of morphology (forms), physiology (life processes), ecology (relation to surroundings) and systematic botany (classification) are developed, and there are concluding exercises in descriptive analysis. The queries may all be answered by simple processes of observation and reduction, and the drawings required are merely outline sketches, such as may be made by one with no artistic talent. No previous knowledge of botany on the part of the student is assumed.

The exercises on the lesson papers are to be returned for correction in five sets, in large envelopes supplied for the purpose. While the first set is being corrected the student continues working upon the second.

A simple, mounted lens of some sort, leaving the hands free for use, is desirable but a hand magnifier will suffice. The instructor can supply a mounted lens suitable for the work, for fifty cents.

The length of time required for the completion of the course depends largely upon the ability of the student and the time per day occupied in study. Three months may be stated as an average.

The fee for membership in the course is ten dollars (\$10.00), which includes all expenses except blank paper, which may be obtained at any stationery store.

The fee may be reduced by Chapters of the Agassiz Association and by other local classes of two or more persons. The students work from a single set of specimens, but forward their papers separately for correction. The fee is \$4.00 for every additional student. Thus, the individual fee for two students is \$7.00; for three students, \$6.00; for four students, \$5.50; for five students, \$5.20. Expressage on the specimens is not prepaid.

The course is open for membership indefinitely after January 1, 1910.

Address correspondence to the instructor.

ALEX. E. WIGHT,
Wellesley Hills, Mass.

The La Rue Holmes Nature Lovers League

By George Klinge, Summit, New Jersey

"THE GUIDE TO NATURE" is the official organ of the LaRue Holmes Nature League. It is important, for the general League interest, that the magazine be liberally supported, through the active cooperation of League members—George Klinge.

L. H. Nature League Motto: "Self-sacrifice; heroism for another."

The prize for the best essay on the subject, "Birds Nearing Extinction," was awarded to Alfred Kinsey, of South Orange.

All records of bird migrations and records of wild flowers of spring and early summer should be sent in by June 30.

The passage of the Audubon Antiplumage bill by New York state is a source of pleasure to all who understand the economic value of birds, apart from their appreciation of their beauty and song. The failure of the New Jersey legislature to pass the bill is a blot on the state, already bearing

the reputation of extreme tardiness in legislating to meet the advanced thought, and culture of the present, in connection with nature-protection.

Dear Secretary:—Such a season! Robins singing from break of day till after dark; meadow larks again making the fields seem full of life; song and vesper sparrows fairly bubbling over with song; and—but there is no use in trying to describe it.

Just now I remember Scrooge's burst of joy: "I feel youthful as a schoolboy; giddy as a drunken man, and so happy I don't know what to do."

I know that by just mentioning "Dutchman's breeches" growing in great beds, on a dripping rock; by telling that every particle of nature is as joyful as reformed Scrooge,, you can guess how my time is filled enjoying real life.

With all the joyous wishes of awakening spring, I remain sincerely yours,

ALFRED C. KINSEY.

The Auxilliary Chapter, South Orange,
New Jersey.

Dear Secretary:—We were very fortunate in having Mr. J. Boniface to speak at our meeting. He gave an interesting talk on quartz and showed many specimens. He has a fine collection of minerals.

I have started a little museum for the children of the Chapter. A friend has given us a number of curios, and I have many myself. Mr. Bates is aiding us by making a cabinet. It will benefit and please the children.

Sincerely yours,

MARIE A. PIERSON.

Hillside Chapter, Morristown, New
Jersey.

Dear Secretary:—As to what we have done toward interesting boys and girls in the protection of birds, I would say that we boys, have, so far, given over twenty talks in the various schools of Minneapolis, and other insti-

tutions; some of them illustrated with stereopticon pictures, and others simply by prints. Through this mode of arousing enthusiasm we have been fairly successful, and as a result, several school-clubs or societies have been organized.

We also arouse interest through the distribution of leaflets. We boys encourage, as far as possible, the erection of nesting-boxes, and the keeping of lunch-counters for the birds, as the owner may in this way watch the birds, and his love and interest toward them is aroused. I think there are few boys who would care to kill or even harm a bird after keeping a counter for a winter, or a nesting-box for a season.

I have at present a lunch-counter just outside my room-window and many birds visit it. The nut hatches are by far the tamest, and one is as confiding in her habits as any bird I ever knew. She will feed from my hand any time, in the most fearless manner, both while resting on the counter and when it pleases her to come within my room to eat. She has come in my room and posed for her picture, and I have taken many photos of her on the counter, feeding from my hand.

A teacher has more influence over a pupil than an outsider, and if she can be interested to form a Chapter in school it is a good thing for the pupil and incidentally for the birds.

Yours cordially,

EDWIN C. BROWN.

Kenwood Chapter, Minneapolis, Minn.

June.

The columbine wood, columbine—

With lanterns all aflame;

The chalices of buttercups,

June's pageantry proclaim;

And round on every side, you know,

The wine of life runs high,

And joy wells in the heart of things—

June's ecstasy is nigh!

Each tree upon the mountain height,

The plant-world far and wide,

Is hustling nectar to distill

To meet life's beaconing tide;

For everywhere 'tis weaving time,

And tissues must be spun

Where mosses hide, and shadows stray,

And out beneath the sun.

Summit, New Jersey.

Geo. Klinge.



The Gypsy Moth in Connecticut.

BY W. E. BRITTON, STATE ENTOMOLOGIST,
NEW HAVEN, CONN.

In March 1906, it became known to us that the Gypsy Moth, *Porthetria dispar* Linn, was present in Connecticut



FIG. 1--EGG-MASSSES OF THE GYPSY MOTH.
(Natural size.)

at Stonington. Knowing the devastation caused to forest, fruit and shade trees in Massachusetts by this insect, we lost no time in starting a vigorous crusade against it. The region was thoroughly scouted and the infested area found to be less than one square mile.

The egg-masses are laid on trees, fences, buildings or rubbish and average about 500 eggs each. These hatch about the first of May, and the young caterpillars feed upon leaves of trees, being especially fond of apple, quince, rose hickory, maple and will eat almost

any kind of foliage, the ash perhaps being most nearly exempt of any of the trees. Caterpillars are about two and one-half inches long when full grown and are of a grayish brown color, with a somewhat poorly defined light stripe running longitudinally along the back. Each side of this dorsal line there is a row of tubercles bearing long brown hairs. The first five pairs of tubercles beginning next the head are blue and the remaining six pairs red, both colors varying in depth and brilliancy. Hairs are also borne from the side of each body segment giving the caterpillar a distinct hairy appearance.

About the first of July the caterpillars become fully grown and in some protected place such as a cavity or crotch, or under a fence rail, they spin a few threads and enter the chrysalis stage. Two weeks later the adult moths emerge. The female with a wing-spread of two and one-quarter inches is cream-colored with narrow brown zigzag markings across the wings. The male is about two-thirds the size of a female, and is dark brown though varying considerable in color. The male flies about even in the daytime, but the female though provided with wings which appear to be perfect, cannot fly at all. She rests with folded wings on the tree by her egg-cluster and if disturbed will fall to the ground with feeble flutters. She is not able to move horizontally or to lift herself in flight. Both sexes are shown in Fig.

The egg-clusters are destroyed *in situ* by soaking them with creosote oil. The caterpillars after becoming half grown feed at night and hide during the day and can be lured under bands of burlap. Men examine the bands

every day or two and kill all caterpillars found. At Stonington their work has been going on for four seasons with the following results.

Date	Egg masses destroyed	Caterpillars destroyed	Cocoons destroyed
1906	73	10,000	47
1907	188	2,936	200
1908	76	2,560	44
1909	6	98	0

In December last, a colony of Gypsy Moths was discovered in Wallingford,

noises are generally connected with swarming, and nowadays a very large number of bee-keepers try their best to have no swarming occur.

One of the brightest young practitioners shows lack of a working acquaintance with the notes made by queens, when he says in an agricultural paper, speaking of the piping of queens:

"This is a sound that few people hear, but it is easily heard if the right time is chosen. It resembles the note



FIG. 2—FEMALE AND MALE GYPSY MOTHS.
(Natural size.)

where it must have been present for about four years judging from its abundance and spread there.

Though the total area infested is not larger than at Stonington it is more densely infested and over 75,000 egg-clusters have been creosoted. What success will attend our work, time alone can tell, but no efforts will be spared to rid the state entirely of this most troublesome insect.

On request to the author, bulletins about this insect will be sent free to any address as long as the supply lasts.

Piping and Quahking of Queen Honey Bees.

Although constant advance is being made in bee-culture it is doubtful whether bee-keepers at large have at the present time as much practical knowledge of the noises made by a queen as they had 50 years ago. Nothing strange about this, since these

of the katydid more than anything else, though it is neither so long nor so loud.

"This noise is made by the young queens while still in their cells. It is the war-cry of hostile forces."

No hint is given as to more than one tone, and yet the quahking of a queen is something quite different from piping, and more queens may be heard quahking than piping. Instead of the piping being "made by the young queens while still in their cells," a queen *never* pipes while in the cell. Piping is the note made by a queen that is out of the cell, *quahking* is the noise made by a queen that has not yet emerged from her cell.

To this some one may reply, "It seems hardly worth while to have two names for the same thing, for the only difference between piping and what you call quahking is that the latter is more muffled because the queen is in the cell." Any one who has such a belief

would do well to allow at least one natural swarm so as to have a chance to hear for himself the piping and quahking. Go to the hive in the evening, after the bees have stopped flying, about eight days after the prime swarm has issued, perhaps an evening or two before this, perhaps one or more after, put your ear to the hive and listen. At first you may hear nothing but a confusion of noises of different kinds made by the workers, but in a very short time the piping will be easily distinguished from all other sounds, louder and clearer, so that you may even hear it sometimes a few feet away from the hive. Immediately after the piping you will hear a queen quahking—more likely several queens will respond by quahking. Do you recognize no difference except that the responding tones are muffled? Listen again, and note the length of the tones. The queen that pipes makes first a long note, much longer than any note of quahking, immediately a note of the same kind a little shorter, and each succeeding note shorter until the close. In contrast with this the sounds of quahking, while coarser seem more hurried, and of pretty much the same length throughout. No, after listening once for yourself you will never make the mistake of thinking that quahking is the same as piping only more muffled.

A queen never quahks after she emerges from her cell. She may—perhaps always does—begin piping as soon as she leaves her cell, and probably keeps at it by spells until satisfied no rival is in her hive; she may pipe, from fright or for some other cause, after she becomes a laying queen, she may pipe when in a cage out of the hive, but she never pipes before emerging from her cell.

Probably no one ever saw a queen quahking; a queen may easily be seen piping. Open the hive in which a queen is piping, and try to locate her. Then listen for the next piping, and it may be in a different part of the hive, for a piping queen is a rapid traveler. Lift out the frame on which she is running, and directly she will stop, hugging down close to the comb, and her

whole body will quiver as she makes the piping noise.—American Bee Journal.

ORIGINAL POEMS

Eventide.

BY CAROLINE SMITH, NEW YORK CITY.

Have you heard the whippoorwill's liquid note
As he calls through the fading light?
Or the sweet low chirp of the birds in the trees
As they bid the world good-night?

Have you heard the brook as it flows through
the woods,
Breathing peace as it moves along?
It's rippling music is wondrous sweet,
Though hushed for it's evensong.

Have you seen the flowers hang their little
heads
As the night dews on them fall?
Do you know the sweet odors the earth
breathes out
Like a blessing over all?

Is your heart weary and heavy with woe?
Creep away close to Nature's heart,
And bare your soul to the peace of heaven
Which the evening shades impart.

The Meadow Lark.

BY FREEMAN FOSTER BURR, EAST HAVEN,
CONNECTICUT.

There's a saucy young fellow down there in
the weeds,
All drest up so fine in a suit of brown
tweeds,
With a pair of white tails and a waistcoat of
yellow;
Oh! I tell you again, he's an impudent
fellow.

When the sky is all blue, and the wind's in the
west,
And the morning sun brightens the gold on
his breast,
"Good morning," says he, with a shrill-whis-
tled note,
Then flirts in my face the white tails of his
coat.

The bluebird's soft warble comes down from
the sky,
And the song-sparrow's trilling where
shaded pools lie;
The robin's rememb'ring his home-coming
song,
And redwing is helping the chorus along:

While out on my fence post he's having his say
With his clear-whistling neighbor from over
the way,
And I think, as he turns his bright breast to
the sun,
With his soul-cheering whistle the day's well
begun.

LITERARY AND BIOGRAPHICAL

In the Woods and on the Shore. By Richard D. Ware. Boston, Massachusetts: L. C. Page & Company.

The author says of this book:
 "These sketches of happenings in the woods and on the shore are but narratives of personal experience with a little of observation and commentary. They are written chiefly for the pleasure of re-calling them and the scenes of their occurrence more vividly to my own mind in these after days, and with the second thought that as they had interested me so much, they might interest others a little."

Famous Poems Explained. By Waitman Barbe, Litt. D. New York City: Hinds, Noble & Eldredge.

It is strange that this book was needed, "for teachers and as a help for students," in explaining the poems "taken from various standard School Readers." It would seem as if any school reader should explain the essential facts regarding any poem not readily understood.

But it evidently was needed and, aside from its school use, the author has well filled his desire to help "a large and increasing number of private students of literature all over the country." It is a good book for the general reader of the classic short poems. The author, by the way, is a most genial man as well as successful professor of English literature. He is at the West Virginia University, Morgantown.

Alexander's Writings on Practical Bee Culture. Edited and Compiled by H. H. Root. Medina, Ohio: The A. I. Root Company.

Mr. Alexander kept bees in a large way, and produced honey by the carloads. In this pamphlet, the benefits of his extensive practical experiences are given to the public. The articles have been gathered from many numbers of "Gleanings in Bee Culture."

Hopkins's Pond and Other Sketches. By Robert T. Morris. New York City: G. P. Putman's Sons.

This is a collection of sketches originally "penned in spare moments to please the little coterie of friends who gather about my open fireplace in the long winter evenings, where the largest bass fails to escape from the hook, and where the bear makes his

most furious onslaught." These sketches have been published in various periodicals and then gathered into this book.

The first chapter on "Hopkins's Pond" is a most touching tribute to the memories of boyhood days; for the author was, yes, is, a boy, a real boy, just the right kind of a boy. He holds sympathy for other boys, as expressed in another chapter:

"Then there are the boys to be considered. How well do I remember the joyous days of childhood when most of my hours were spent in the woods, and when the birds, and animals, and fishes, and plants seemed to be the only things in the world worthy of consideration."

Oh! What dainty expressiveness is this:

"Echo hiding up among the rocks quietly reproved the boy who yelled too loudly when he pulled the croaking bullhead out of the warm pond water, and with a low, forbearing voice showed with nice modulation how the sound of joy ought to be made next time."

The author makes us love the pond, as he does, by skillfully portraying its charming present, and heart touching memories. He shows us how much it means to those who know it, and how little it expresses to those beyond the esoteric group.

Just read this masterpiece, any of you old boys with pond memories, and the present repeatedly living over of those days, and then scream with delight, silently in your heart, at the touch of expressiveness that makes us all kin:

"One day recently Echo, up among the rocks, was heard protesting more loudly than ever before, and soon a coaching party of sightseers with four bang-tailed horses and a brazen horn came rolling along the road. One of the ladies touched a gentleman on the arm and said, 'There is a pond.' The gentleman answered, 'Yes.' And the coach rolled on.

"That was all that it meant to them, for they were sightseers."

Now yell, you naturalist reader, you gray headed boy who understands, shout with exultation at your heart's wealth; lament the indifference that "rolled on." Oh, the pitifulness of their poverty.

"There is a pond."

"Yes."

It takes only three letters to tell a great loss—a great misunderstanding—an incredible "other world."

PUBLISHER'S NOTICES

'Tis not in mortals to **COMMAND** success, but we'll do
more, Sempronius, we'll **DESERVE** IT. *Addison: Cato.*

A Convenient Window Tent.

BY ALEX. E. WIGHT, WELLESLEY HILLS,
MASS.

Bread may be the staff of life, but fresh air is the mainspring. The most



THE TENT IN POSITION.

nourishing food cannot maintain strength if oxygen is not allowed to create the energy needed for assimilation. Air which is breathed over and over loses its oxygen and becomes dangerous to health.

These facts are now realized by most intelligent persons—and by none more than nature lovers—and during warm weather the “sleeping out” habit is becoming an established custom with thousands.

The real fresh air problem, however, arises in winter, when sleeping out must be abandoned because of storms and the discomfort of the heavy weight of bedclothes needful to resist cold. It is then, when indoor life is the rule, and “house diseases” multiply, that a regular supply of fresh air is most necessary.

It is by the window tent that the requirements of the case are most effec-

tively met. This device extends from the open window over the pillow, and so ensures pure air all night, at the same time allowing the room to be kept warm and comfortable. There is no draught; a heavy weight of bedclothes is unnecessary; and dressing in the morning is not a Spartan undertaking.

The Wellesley Window Tent, here illustrated, is adjustable to any width of window, and may be quickly changed from one window to another. It does not interfere with the action of the sash, which may be lowered to the extent desired in stormy weather. It may be readily detached from the window when not in use, or may be raised out of the way with cord and pulley.

The tent cloth is a pleasant shade of green, agreeable to weak eyes, and the entire effect is artistic.



INTERIOR VIEW.

It is not only lung troubles that are helped by the fresh air treatment, but also colds, anæmia, insomnia, and numberless forms of nerve exhaustion, while people in good health increase in strength, courage and good spirits.

"Turtle Eggs for Agassiz!"

We print it with an exclamation point though it has none in the original in the February, 1910 number of "The Atlantic Monthly." It is a surprisingly readable article from the skilled pen of that literary artist, Dallas Lore Sharp. It is as interesting to note how he has dug into this new field of "nature literature," as it is to watch "Mr. Jenks of Middleboro" dig under the turtle for the freshly laid eggs, then to follow his astonishing race by horse, train and cab to land those eggs with Professor Louis Agassiz within three hours, but he arrives on time in the early morning. The maid regards him as a lunatic, but there is a dramatic rescue:—"For just then a door overhead was flung open, a great white-robed figure appeared on the dim landing above, and a quick loud voice called excitedly,—

"Let him in! Let him in. I know him. He has my turtle eggs!"

"And the apparition, slipperiness, and clad in anything but an academic gown, came sailing down the stairs.

"The maid fled. The great man, his arms extended, laid hold of me with both hands, and dragging me and my precious pail into his study, with a swift, clean stroke laid open one of the eggs, as the watch in my trembling hands ticked its way to seven—as if nothing unusual were happening to the history of the world."

Yes, it is dramatic and interesting, but one can but wonder why the turtle was not kept in captivity when eggs (as in Arcadia's laboratory last season) could have been obtained by the quart at any stage of development.

But don't fail to read the entire article just to see how he, Sharp I mean, digs a wonderfully fresh and spirited article from an ancient, dust covered turtle book.

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If you are interested in microscopes, cameras, field glasses, or lenses of any kind, scientific books, etc., write to Edward Pennock, Woodland Avenue, Philadelphia, Pennsylvania, for his Special Bulletin. In this the prices for well known, first-class goods are astonishingly low.

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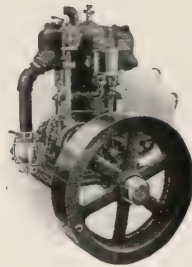
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(Continued from page xii.)

strip of woodland, mostly of chestnut trees, and beyond are the hay fields, where many tons of hay are harvested in the summer.

Indian Spring, the summer home of Mrs. Thomas S. Gray, shows care and culture in its surroundings. The house is about fifty years old and was for years the home of the late George Fox.



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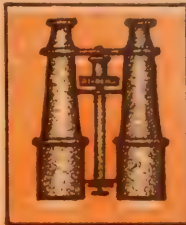
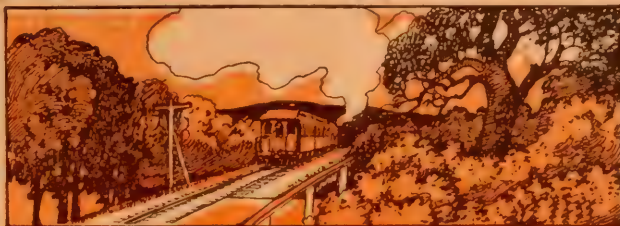
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THE LAND AND THE HOME

A LOCAL DEPARTMENT

Real Estate and Home Supplies Along the Connecticut Shore

Stamford.

Photographs and article by Julie Adams Powell.

Sale of Hubbard Estate.

During the past month an important deal in real estate has been carried through. This is the sale of the estate of William Hubbard, situated on West North street and Hubbard avenue, to the Home Building and Development Company, of which Mr. John J. Linskey of Union City, Ct., is president and treasurer. On the tract there is a large stone house, which was the home for many years and until the time of his death, of William Hubbard, one of Stamford's best known and oldest residents. The property consists of six acres, and will be cut up into high

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section of the city. The street is
well kept by the town, and is lined by
thrifty maples and elms, which meet
in an arch overhead, and the hand-
some stone bridge which crosses the
Rippowam adds much to the rest.

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Fronting on North street is the property of Mrs. J. H. Powell known as Hillside Park. Charles A. Miller and Clinton M. Fisher have built two pretty cottages here, where they reside. Just beyond, at the top of the hill, is the

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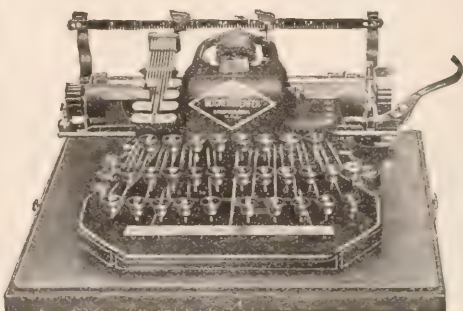
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Manor School for Boys.

It is eleven years ago that Mr. Louis D. Marriott came to Shippan and opened a school for boys in the old Manor House.

During May Mr. Marriott purchased the entire property of the Manor School corporation, together with its good will and business.

When Mr. Marriott first came to Stamford, he opened the school in the Manor house, but with time the school has grown, until now the dormitory building is a model of convenience and comfort, while the gymnasium is one of the finest of its kind in the state.

This sale at Shippan is one of the largest transactions in real estate that has taken place in some time.

A. S. Quimby, of Lindale street, has sold his summer home at Talmadge Hill, to D. M. Bennett, a New York business man.

The Home Building and Developing Company has also purchased five acres of land on Hubbard avenue from Charles Edey Fay. This adjoins the Hubbard estate.

M. W. Fleming, the coal and wood dealer, has purchased a valuable tract of shore front property of the W. L. Wilde estate at Waterside. It is located at the head of the harbor and gives

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(Continued from last month.)

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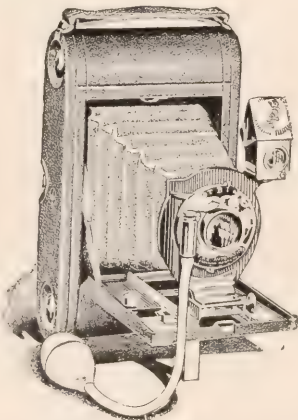
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to the right is the farm of Arthur P. Hatch of Stamford. This was a part of the Davenport estate.

A long hill confronts the traveler, and as one mounts, the view becomes wider, and when the top is reached, to the left can be seen the mountainous hills of New York state, and if the day be clear, the towns of Greenwich on the west, the Norwalks on the east, and Stamford on the south are spread before one like a panorama.

This is Davenport's Ridge, and here at the very top we find the homestead of many generations of Davenports, still in good preservation. Erected in 1775, this attractive old house is one of the few remaining Revolutionary land marks.

A few yards from the homestead, is the larger residence of B. Butler Davenport. The house was built by Mr. Davenport's grandfather the late Rev. Amzi B. Davenport. Situated on the extreme height of Davenport Ridge, the view is all that any one can desire. Mr. Davenport spends his summers

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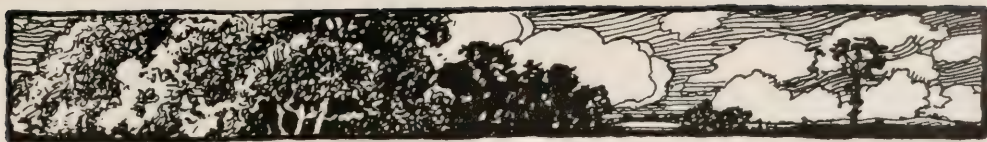
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MR. FITCH A. HOYT'S CABIN, "WAWONAISSA," IN THE WOODS.
"Went there for several years as a place of rest for himself, his family and his friends."

It takes a long time to know much of nature. It is difficult to tell people how to do it. Do you know how, with all your experience? No, don't answer; I know you don't. Nobody told me how, and if he had I could not have done it on his plan. I sought it out alone and nature revealed herself to me. It is painful to see the indifference of others.—*Fitch A. Hoyt.*



THE GUIDE TO NATURE

EDUCATION AND RECREATION

VOL III

JULY, 1910

No. 3



The Nature Studies and Recreations of a Business Man

By EDWARD F. BIGELOW, Arcadia: Sound Beach, Connecticut



ANY years ago I read a statement made by some prominent naturalist to the effect that the best naturalists do not write, lecture, teach, collect, buy nor sell. I have forgotten who made the assertion or where I read it, because to me at the time it seemed an exaggeration and far from an expression of the truth, and it is chiefly for these reasons that it has clung to my memory. I wondered how any naturalist could laud what seemed to be inefficiency and inexperience, especially since he was in positive contradiction of the authoritative and divine statement that, "By their works ye shall know them." But there is another fact someone overlooked which is that the intrinsic merit may be of the highest

quality, though the "works" may not attract the attention of those in the immediate vicinity of the worker. The cause may be none the less efficient though its effects may never reach us.

As memory goes back to my boyhood, I find that I must have been one of the best naturalists in many respects, for I never wrote, lectured nor even read of nature, and most of us who in later years strive to create and to increase a knowledge and love of natural objects find ourselves constantly reverting to those unconsciously accumulative days of early youth on the farm. I now can understand what was a mystery when I read that statement which I remember so vividly because of my rebellion against it.

We who find ourselves revealed by

Darwin, Thoreau, Gibson, Burroughs, Jefferies or other great masters of nature communion, are disposed to think of these observers as the all in all of nature, and that to read, record and collect like them is the end and aim of a naturalist's existence. These things have their place and value, it is true, but the more we read, the more we study, expound and classify, the more distinctly do we realize that these factors are but the means to an end, that the greater the master the more eager is he to send us to nature, and that he usually does so with the simplicity and the humility of a child.

Sometimes it seems sacrilegious to teach nature or to attempt to classify and arrange her possessions. The subject seems too great for us to comprehend, too holy to be thus handled by our petty methods.

Burroughs has correctly expressed this thought—"I would not teach nature; I would introduce young people and nature to each other and let an understanding and intimacy spring up between them."

Fortunate are those of us who can rule out the "shop," and "the ways

and means," and return to the loving understanding and the boyish intimacy. More fortunate in many respects, are those who can get the "production" without the "machinery." The production is the direct values of nature; the machinery is the tedious methods of getting these values. Such thoughts have deepened in the past few years as my acquaintance has increased with a man who gets as near to the reality of nature as any man I have ever met, although he has never written an article, never talked of his love for nature except reluctantly to the members of his family and to a few intimate friends. We are so inured to the exploitation in magazines and elsewhere of the leader, the one already famous, that it undoubtedly will be an agreeable change to learn of one of the faithful workers among the rank and file, one of those that are typical of a point of view that must be vastly multiplied before we shall be able to accomplish an ideal result in what we call "public opinion," a result earnestly labored for by those who do advance and think, but who do so quietly.

Such an ideal unit that should fav-



MR. HOYT GOES TO HIS COUNTRY HOME EVERY DAY.

It is a short run by automobile from his city home in Stamford.



AT THE PICTURESQUE BACK DOOR OF THE COUNTRY HOME.

orably influence public opinion is Mr. Fitch A. Hoyt of Stamford, Connecticut, who has reluctantly permitted me to tell of his nature interests, and solely because I have argued as skillfully as I could that what nature has been to him as a business man and in his retirement from business must be helpful to others. The extent to which he is a naturalist is unknown even in his own town, to his own family, and possibly, to himself. Perhaps I may personally take some little credit for having "discovered" him, as I have done in the sense in which during recent years I have discovered that I was a better naturalist in my boyhood than I am now.

Mr. Hoyt for many years conducted one of the largest grocery establishments in Stamford. He entered his father's store at the age of twelve years, and I tried by questioning him to get material to prove one of my pet theories that in these later years the nature-loving instinct of the boy had returned or been revived, but I failed. He had never had a country

boy's experience the remembrance of which so many of us are fond of cherishing as one of the greatest resources of advancing years. But he had the facts which have helped me to formulate another and better theory, that in mature years, when in full possession of the adult's powers of mind and body, there has come to him all the charm of a boy's original relation to nature, all the delights of discovery in an enchanted land, which he, unlike the rest of us, never knew.

About twelve years ago, shortly before disposing of his long established business, Mr. Hoyt built a log cabin in the primitive woods at the north of Stamford and, as thousands of others have elsewhere done, went there for several years as to a place of rest for himself, his family and his friends. But if this were all, there would be no excuse for the presence of this article in *THE GUIDE TO NATURE*.

A few years ago the woods revealed themselves to him. Thoreau said he always felt alarmed if he walked a mile in the forests without entering them.

If he had known it, like thousands of others who have carried a bit of the city into the country and have thought they were really within touching distance of nature, Mr. Hoyt had more cause for alarm than Thoreau, because he had not as yet come to understand and appreciate the inner life and the inspiration that come from nature, and for which a few of us plead, and for which we are so unkindly misunderstood by thousands who wag the head at us and pass by on the other side.

More than ten years ago I photographed his cabin, merely as an act of friendly courtesy, and never made mention of it in any form because he, like so many others, had not gone to nature only because he had built a cabin in the woods.

But within the past few years, nature "understanding and intimacy" have come and are coming in joyous, inspiring, enthusiastic measure.

The reader is aware that the writer has known many great naturalists, and for that reason my remark should have some weight when I say that not one of them had a more genuine love for nature than has Mr. Hoyt. He will object to my saying this, and I do not say it to exploit him, but to hold out hope to you, O, business man, in activity or retirement, that you may get to

nature—YOURSELF, not merely your bungalow, your cabin, your money or your acres.

How do you get there, Mr. Hoyt? I inquired.

"Break away; but if you do that, you've got to try and to try hard. There is so much to see, so much that is good, that life isn't long enough to look around and see it all. There are no two days alike. The woods and fields and flowers are different every day. There is more inspiration there than the man who seeks only wealth can ever find. Get a big lot of wealth, get many things to care for, and then there is trouble. I do not want to go to the big gatherings. I go away from them to the woods. Only one thing I regret—it seems so selfish; I get so much of nature's wealth, and so many other people get so little. I try to tell them, but they are deaf, and I give it up. It takes a long time to know much of nature. It is difficult to tell people how to do it. Do you know how, with all your experience? No, don't answer; I know you don't. Nobody told me how, and if he had I could not have done it on his plan. I sought it alone and nature revealed herself to me. It is painful to see the indifference of others. But I shall continue to observe whether they do or do not.



CROSSING THE RIVER BY A WIRE BRIDGE.

The river is in the ravine back of the country home—between that and the cabin.



THE RUSTIC STAIRWAY IN THE CABIN.

Only now and then one, but if you get only one, you are doing great good. It is delightful. You cannot explain it. You've got to feel it, as the Methodists say."

And then I interrupted; the worst of it is you are sometimes, perhaps many times, misunderstood by the professional naturalist. Did you understand this when you were in business?

"No it all came to me later, when I forgot the store and let myself loose in the woods."

Now do not mention this, will you, Mr. Hoyt? Some of our "best" naturalists and scientists are still in the store—classifying, arranging, collecting, dusting, packing canning, talking, haggling over details, selling, walking around and around their own counters, keeping their own books and—

Mr. Hoyt interrupted. He slapped me on the knee.

"Say, are you talking to me about my store or—Oh, I understand! Yes,

perhaps there are others. I did not get to nature through the 'store' interests. And perhaps some of your customers do not understand you when you are in the store and they are in the woods, or when they are in the store and you are in the woods. But it isn't only the city man who misunderstands? The city man can get to nature as easily as the countryman."

How often do you get out to the woods?

"Every day. All weathers are good; it is just the same in winter as in summer; always good and beautiful. What you do not see at one time, you will at another. Nothing more beautiful than icicles, snow and frost. All outdoors is a continuous panorama at all times."

Do you keep a record of your observations and make collections?

"Not a bit. I couldn't take time to read the records or examine the collections. Every day has enough of new things. The book is too large and too



MR. HOYT STARTING ON AN EXCURSION FOR MICROSCOPIC LIFE IN THE MARSHES.

interesting. We must keep on reading ahead. Life is too short to go back and re-read. I can sit down in any place at any time and right there and then see and hear enough that is new. What's the use of going back to yesterday?"



THE SUBSTANTIAL AND ATTRACTIVE CHIMNEY OF THE CABIN.

You find it also physically beneficial?

"Yes. I practice deep breathing in the woods. Stand up this way," as he then illustrated, "throw the shoulders back and breathe in, and in—so. Why the woods are full of oxygen. Seems to me more there than elsewhere. And why not? The scientists tell us the leaves are giving out oxygen. It seems to me to be in the air strong and inspiring. No place equal to the woods for good breathing. I have no rule. I go at it as I see fit. I believe I can thus 'stave off' a cold."

Mr. Hoyt advocates crushing the various aromatic leaves and enjoying their odor. Thoreau also advocated this, and the Japanese ideally practice it by organizing parties which visit the woods for this purpose. Mr. Hoyt puts it as follows:

"There is an aroma exhaled by certain trees by which they may be recognized at a considerable distance. Did you ever smell the cedars on a hot day? They have a curative quality."

Mr. Hoyt also believes that "Some of the most beneficial things are so simple that most people won't practice them. I believe in outdoor bathing in brook or pond. It is a good thing even to take an 'atmosphere bath' in breezes and sunshine."

As he saw me taking notes, he said: "I don't want that. I do not want you to tell about this. I'm just talk-



RESTING ON THE ROCK COUCH IN THE WOODS.
 "See! It fits so well it feels soft."

ing to you personally, as a naturalist, telling how I do it. . . I know people who cannot sleep at night. Better be up in the woods and let nature cure them. . . May lose their money. This is the true wealth. No one can take it from you. In boyhood I didn't know it. Never knew it till I got out of business, and then I went to Old Mother Nature and get what I couldn't get elsewhere and what money couldn't buy.

"I went to Jerusalem, Old Spain, the whole length of Italy, Germany, France, England, Asia Minor, Egypt, the Pyramids; but in none of these did I find the equal of what I find in the woods. Nature does not advertise. You go by her, you spit on her, abuse her, but there she is with arms wide open, trying to help you and everybody else. I was fifteen years 'at it' before I knew it was there. It's a nice thing to get something of value that



MR. HOYT AND THE WRITER UNDER THE GIANT OAK.



THIS BOULDER HAS BEEN "UP A TREE"
FOR SEVERAL YEARS.



THE UNITED OAKS NEAR THE CABIN.

isn't mixed up with dollars. One gets tired of the rush everywhere for dollars. Go and sit in the woods and get out of it. You cannot get it under the electric lights where everything has a label on it. But do not go at it with the business method. I do not care whether I catch the bug or not; if it escapes, I surely have had the benefit



"JUST LOOK AT THAT—ONLY A LITTLE
CRACK. AND IT SEEMS AS IF THE
TREE IS GROWING OUT OF
THE ROCK."

of seeing it. But it is like fishing—one cannot always get the fish. Sometimes, you know, as they say, 'They won't bite.' But then there are times when you can get 'a whole mess.' But do not misunderstand. You cannot say to all the pretty things, 'Come,' and have them come. They do not obey in that way. I know I am getting satisfaction, but I can not tell it to others—not as I understand it. But I know it is all right. I wish the whole world could get some of it. It wouldn't hurt



A GAME OF QUOITS.
In which Mr. Hoyt is very skilled.

them but would do good. I just 'grab' what I see, if it comes to me in its own sweet way."

And then he told of watching a song sparrow teach her young; of a humming bird alighting on a wire of the cabin so that he could closely observe it, and then added this philosophic statement:

"Don't worry if you forget some of the observations. Plenty new each day to keep one busy. There is something in solitude which many people do not understand. Go alone—but you will not get a diploma; you never graduate; nature never gives final de-

grees, but there is no end to the honors that she can confer.

"A man who studies nature reads folks better. You learn to appreciate all kinds of people. It takes many different things to make up nature. You recognize that each has its place. So it is with all kinds of people."

* * *

To induce you to have an "understanding and intimacy" in your own way with nature, to get value equal to that of Mr. Hoyt's is the purpose of this article and of this magazine, and the object of the writer's life.





The Need of an Astronomical Observatory.

As remarked by an astronomer and published in a New York city newspaper, the wise and otherwise statements and exploitations, mostly sensational, of Halley's comet served one good purpose. The visitor that comes only once in seventy-five years reminded us at his recent call of the need of an astronomical observatory for this section of the country. This need was made manifest not chiefly for the study of the visitor, but as the outcome of a renewal of general interest in astronomical observation.

Almost incredible it is, there is not even a medium sized observatory in or near New York City. San Francisco and the smaller cities and villages of California have their Lick Observatory on Mount Hamilton, hardly remote from their "suburbs"; Chicago and other places of the Middle West have their Yerkes at Williams Bay, Wisconsin—only a short run on the train out from the glare and smoke of the city.

The hills north of Sound Beach are an ideal location for an observatory in this section of the country. They are just the right distance from New York, and within convenient access from several coast cities and villages, and easily reached by one of the best railroads in the country. Think of it. There is no other location in the eastern United States so well adapted to this purpose nor so convenient to millions of people.

Logically such an institution should be under the management and care of The Agassiz Association—the oldest and largest organization in existence for popularizing a study of every department of nature.

Such an observatory need not be so

large as the Lick or the Yerkes, perhaps not even one fourth as large, because its work would quite properly be, in this thickly settled part of the country, more for general information—popularizing and educational rather than for original research.

The Heavens in July.

BY PROF. ALFRED MITCHELL, OF COLUMBIA UNIVERSITY.

To most people, Halley's comet was a big disappointment. The much advertised heavenly visitor has come and gone no more to be seen to the naked eye for three-quarters of a century. When it was discovered last September, we read articles in newspaper and magazine of the wonderful accuracy of astronomical prediction, and the keen searching powers of the photographic plate. As the comet got brighter, we learned its history, with all the details of Halley's interesting calculations there, on back to the year 240 B. C., and up to the present with fact and theory interwoven. So much was written by such a variety of persons, that the general public expected a wonderful object with a head almost as big as the moon, and a brilliant tail streaming far across the sky. Those who had never before seen a comet looked for such a sight—but it was not to be.

Those who had looked carefully into the subject did not expect as fine a comet as that of 1882, which was less bright than the comets of 1861 and 1858. To the trained astronomer who had watched the comet grow from a tiny hazy star visible only in the greatest telescope to the fine spectacle we saw in the morning and evening skies, the comet was a remarkable object. But even he was a little disappointed, for the tail, though long, was always

faint, and allowed itself to be photographed only with difficulty.

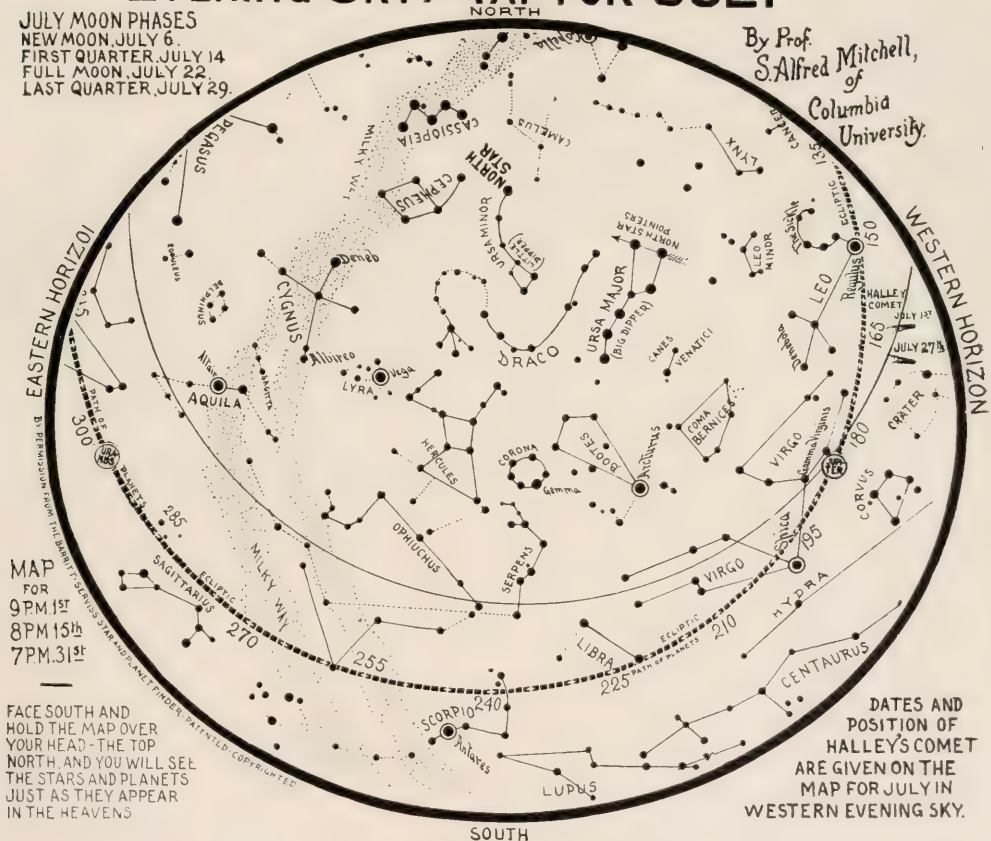
In the June issue was given Dr. Ebell's estimate of the brightness of the comet, but the comet has fallen far short of what, judging from the 1835 appearance, it should have been. In short, it was a disappointment to the public and astronomer alike. The astronomer had hoped to test many interesting theories, but Halley's comet probably left more puzzles than it cleared away.

In order to give our readers the most direct information possible, the

interest that might happen as we passed through the comet's tail. On the morning of the 18th, Professor Barnard and the observers at Yerkes had witnessed one of the first views of the comet obtained, a broad band of light five degrees in width, passing through the square of Pegasus, sloping upward as it passed south till it vanished in the stars of the Milky Way 107° from its starting place.

The night of May 18 was a most interesting one. What would be observed as we passed through the tail of the comet? And would the

EVENING SKY MAP FOR JULY



present writer went to the Yerkes Observatory of the University of Chicago at Williams Bay, Wisconsin, reaching there on the important day of May 18. At the observatory (where this is being penned), the excitement on that day was increased by the presence of nine newspaper reporters, who were ready to chronicle anything of

comet be seen on the face of the sun? According to cometary theory, the particles composing the tail were too minute to form meteorites, but if they carried charges of electricity, a faint aurora might be seen. Unfortunately the moon was bright and did not set till after two, and the dawn came on shortly after three o'clock, so that

little opportunity was had to view the phenomena on a dark sky. At 9.30 P. M., a brilliant aurora was seen. This probably had nothing to do with the comet, but was connected with a fine group of spots on the sun that Professor Slocum had photographed with the forty-inch telescope earlier in the day.

As the night wore on, no noticeable effects of the tail of the comet were seen. However, as the moon got lower and lower toward the western horizon a faint misty-like cloud in the east took on more and more definite shape; and this proved to be the comet's tail, almost in the same position where it had been twenty-four hours previously. The astronomers were puzzled. The comet should have passed the sun before midnight, and if the tail were straight, it should have been seen in the west instead of the east.

The observers in Honolulu, Manila and Australia, in the Pacific, were favored with clear weather, and closely watched the sun to try and see the comet during its transit. Absolutely nothing was seen. The enigma of comets was heightened rather than decreased, the head of the comet was too tenuous! We knew the tail to be flimsy, but we had thought that the "rocks" or "meteoric stones" forming the head would gather together into agglomerations big enough to be seen projected on the sun. What is a comet anyway? Halley's comet has been visiting us we know for more than two thousand years, the head has been continuously losing matter to form the tail which at this appearance was at least twenty-five million miles in length. And yet there is not enough material in the head for us to have seen any trace of it!

The night of May 19 was cloudy at Yerkes. At other places, the head of the comet was seen shortly after sunset in the west exactly at its predicted place. Towards morning faint streaks of light in the east showed the tail still on the opposite side of the earth from where the head had been seen. The astronomers had been able to explain

the tail in the east on the morning of the 19th, but on this morning, the 20th, it was hard to understand how it could be, but there it was nevertheless. To use an illustration of Professor Frost, the comet is like a comma, the tail more or less curved. In the morning skies, we had been approaching the comet approximately in the place of its path about the sun and the curvature had not been apparent to us. But the curvature was there none the less, and it was not at all surprising to see the tail in the east on the morning of the 19th. We were moving through space relative to the particles forming the tail at the rate of 43 miles per second. Twenty-four hours at this speed means a distance of over three and a half million miles—but there was the tail of the comet in the east on the morning of the 20th. There are several ways of explaining how this is possible, but none are quite adequate, and we will have to rest till more complete observations are at hand.

Most of us had many fine views of the comet in the evening skies before the twelfth of June, when the moon put an end to all naked eye observations. People who lived in the country, away from the dust and smoke of the city and the glare of electric lights, had a much better chance to see the tail. It was so faint that the feeble extensions were lost to the city observer. There were quite marked changes in the comet's appearance from night to night. On the evening of June 6, Professor Barnard obtained an exquisite photograph with his ten-inch Bruce camera. This showed practically the only real activity in the tail during its photographic history. A large portion of matter is there seen ejected from the head. The effect of this outburst was seen the next evening for the comet was very much fainter.

The spectroscopic work on the comet gained little of interest. During the evening appearance, the cyanogen band in the violet part of the spectrum remained relatively strong in the head of the comet, but it was absent from the tail. As the ordinary photographic plate is most sensitive to violet light

this deficiency in the light of Halley's comet showed itself in the difficulty of obtaining strong photographs. In this respect it differed much from the Morehouse comet of 1908. This comet of two years ago, became at best just visible to the naked eye, but its tail showed remarkable changes in appearance from night to night. In fact this comet looked like one in full vigor of youth, while Halley's comet, with its two thousand year history, appeared as in the midst of decrepit old age.

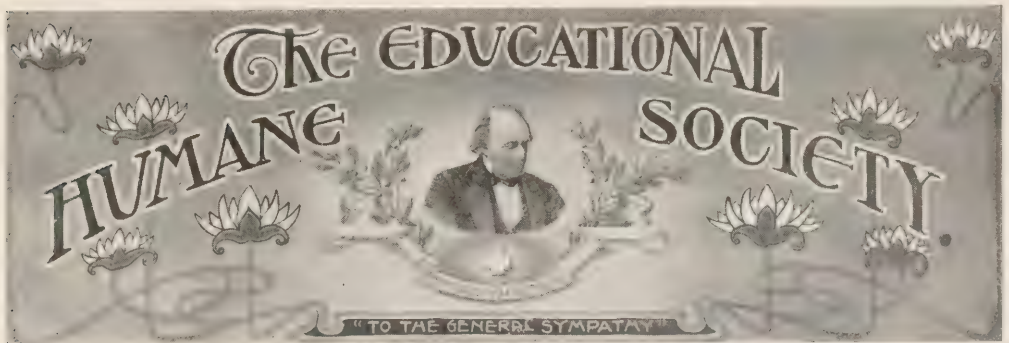
The present generation is still waiting for a really magnificent comet to visit us!

THE PLANETS.

Observers of the morning skies

shortly before sunrise will find Venus and Saturn very interesting. Possessors of telescopes will find the former in the crescent phase, while the rings of the latter show up well. Mars is still in the evening sky, but faint and hardly worth looking at. Telescope owners will find Jupiter well worth studying, the belts being specially fine and beautiful. In the great 40-inch telescope a few nights ago, seven belts were counted. A good 4-inch telescope should show most of them well. Transits of the satellites can also be readily observed.

Uranus is in opposition, on the meridian at midnight on July 16. Circles on the telescope are needed to pick it up. By sweeping in Sagittarius with the help of the map it may be found.



A Chapter of the Agassiz Association. (Incorporated 1892 and 1910.) The Law of Love, Not the Love of Law."

The Old Style of Mercy.

In regard to human beings, the passing of the old style of mercy is thus expressed in the June number of "The Delineator:"

In that dark period of the world called "The Middle Ages," when life pressed heavily on the average individual, there sprang into existence any number of agencies for the relief of human suffering. They were known in a general way as Orders of Mercy. The world has become much better since then and there is apparently not so much need for the vast array of services which were formerly rendered, but there is one which modern condi-

tions have produced, and which our philanthropists and lovers of charity have overlooked until now, and it has given rise to a new Order of Mercy."

"The Delineator" then goes on to tell of a Bureau of Social Service that is an improvement on the Ancient Order of Mercy.

Humanity has long ago passed the point of view where mercy is needed, because we have come to the idea of social equality. The oppressor and the oppressed have been succeeded by higher ideals. The age passed without our fully realizing it. We saw not the slipping away till the word Mercy in relation to human beings was repugnant.

Now let us ring out more rapidly the age of Mercy for so-called "dumb" animals, and ring in the better social relations, a better point of view.

A Band of Mercy is of "that dark period . . . when life pressed heavily on many an individual." There was need of it for relief of animal suffering. But "the world has become much better since then."

We need now a "Bureau of Social Service" to cover all forms of life. The Agassiz Association is such a bureau. Do you belong to the "Middle Ages" or are you looking to better relations?

The Mice and the Dinner Bell.

BY NELLIE B. PENDERGAST, DULUTH,
MINNESOTA.

It began several years ago, when I glanced over my shoulder and saw a mouse among the papers on a desk across the room. Armed with a piece of cracker I went over to the desk. He promptly hid himself, but moral 'sua-sion, backed up by cracker crumbs, prevailed and in a short time he was sitting on my hand eating the crumbs. Thereafter the friendship progressed rapidly, and before long he would come to me on the floor and eat from my hand. If he came for lunch when I was too busy to attend to him he would come boldly out on the floor beside me and sit up on his hind feet and look at me, like a little dog, to attract attention. Several times the pair came—the other mouse having evidently been told about me, as it needed no special taming. Then they suddenly ceased to come.

Soon after their disappearance we moved into another office and for a year or more I saw no mice, although they came sometimes at night. One day I took a mouse, caught at home, to the office in a cage, where it remained for several days, but seemed so unhappy that I gave it its freedom, leaving a supply of food and drink in the cage. This had all disappeared by morning, and from that time on I ran a free lunch counter, my mouse coming and going as he liked; at first coming for the food at night, then showing

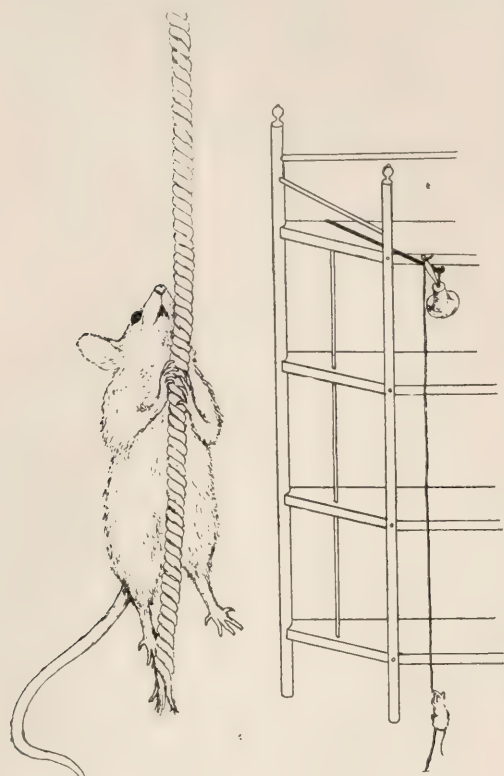
up before closing time, and within a few days was coming at intervals during the day—and did not come alone. He had evidently gotten acquainted, told the others that the board was good and brought them along, first one and then another, until I had four regular boarders. My own mouse was the tamest (I knew him positively by a little bald patch he had worn on his nose trying to get out of the cage) and was soon eating from my hand, and it was not long until all four had learned the trick and often two sat side by side on my hand eating crumbs. Later I varied the performance by leaning a little board from the floor to my knee and they learned to climb up and take their dinner on my lap—three of them very timidly, but one would sit there as contentedly as a kitten.

As they grew tamer they began to show little personal traits and ways that were very entertaining. They were very fond of cooky. One day I had nothing but Quaker Oats to offer. They ate them contentedly enough, but when, the next day, having forgotten to bring any cooky, I again offered the oats to my mouse, he walked around on my hand, poked the oats about with his nose, and looked up inquiringly at me, asking "Is that all there is?"

I always talked to them and they quickly learned to know my voice, and when a tiny head peeped cautiously from beneath the desk, a few softly spoken words would reassure the little fellow and he would come boldly out. But this confidence extended only to myself, and others who wished to see them were obliged to hide behind the furniture at a distance and keep perfectly quiet.

This went on for over a year, the population being a shifting one on account of the many dangers that beset their lives, my "boarders" ranging from one to five or six at a time, and once included a little cripple who dragged both hind feet but still got about with astonishing rapidity. But one day early last summer one of the old crowd brought her four babies to grow up in what she seemed to think

a land of peace and plenty. They were so tiny—scarce bigger than the end of one's thumb—but perfectly independent, and already showing individuality in their ways. At first they were



THE MOUSE RINGING THE BELL.

very timid little mites, but soon learned to know me as a friend and grew tamer and more confiding every day. All four lived to grow up, and by the time they were full grown they were the most engaging little pets I ever had. They never out-grew a timidity which sent them flying to cover at a sudden movement, but it was a matter of hereditary nerves and not real lack of confidence, as they reappeared at once, as tame as ever, and often stopped halfway to cover, as reason overcame instinct and they thought "Oh, what's the use; she never hurts us." Early in our acquaintance they would come boldly out on the floor near the feeding place and sit there looking up at me expectantly, and if unnoticed, would climb up through the drawers of my

desk and a tiny head would peep over the edge of a drawer close beside me, saying, "I would like my breakfast, please," and when I reached for the food-can the head would disappear, there would be a hurried scrambling in the desk, and the mouse would reappear at the feeding place, looking eagerly for the expected treat. They soon became so utterly fearless that if the table was not set on time they would literally swarm all over my desk, even while I was running the typewriter.

What they had learned encouraged me to experiment a little as to their capacity for learning more, so I got a little hand-bell, fastened it to a bar projecting from the top of a small book-stand near my desk, and tied to its handle a large cord reaching almost to the floor. Beginning that morning I pinned little bits of food to the end of the cord, they smelled it, climbed up the cord to get it, and their weight and the twitching necessary to get the food would ring the bell. Whenever this happened I immediately threw them a little food and when it was eaten, fastened another bit to the cord, and this was repeated at short intervals during the day. On leaving the office at night I took up the bell rope so that they would not ring the bell during my absence and be disappointed at getting nothing, but next morning let it down again with another bit of food. That ended the training. One little fellow had "caught on" in 24 hours, and during the day rang the bell several times without any bait on the cord. For some time that mouse was bell-ringer for the crowd, as well as on his own account when he happened to come alone. He would climb up on the rope, take hold of it with his teeth and twitch and yank until the bell rang, then drop to the floor and wait for me to set table. The second day after he learned the trick he came for his breakfast, found nothing to eat, and proceeded to do stunts on the bell rope. I gave him a few bits of Quaker Oats, which he ate and rang the bell again for more. This time I gave more oats and a few bits of peanut. He ate all the peanut.

sniffed disapprovingly at the oats, and deliberately marched over and rang his bell for more peanut.

In a short time another mouse had learned to ring the bell, and a third, the smallest of the lot, had learned what ought to be done, but not how to do it. He would stand on his hind feet, take hold of the rope with his forepaws and move it back and forth in an experimental way as he looked up at the bell, saying so plainly, "Oh dear, how does this thing work"? Whenever I saw him trying I fed him, and once or twice he succeeded in getting a faint sound from the bell. They evidently had a very clear idea of what the bell was for—namely, to make me *hear* when I did not *see*, as shown by the fact that if they saw that I was looking at them, they only sat around, looking up at me for their expected treat, or climbed on my desk to get nearer to me and make sure I noticed them, saying by every look and action, "Don't you see us waiting?" If I wanted to see the bell-ringing I had to watch cautiously from a distance.

One day as I sat near the bookstand one of the older mice tried to solve a question that had evidently occurred to him something like this: "When we ring that bell the food drops down from somewhere; I wonder if it is in the bell." He started deliberately up a little round rod of the bookstand, climbed steadily up past the four shelves, did a cakewalk out along the little horizontal bar to which the bell was fastened, and examined the bell as thoroughly as he could from his insecure position. Having satisfied himself that there was "nothing in it" he climbed down again. They often played round the stand, but climbed up one shelf at a time and examined everything on it carefully before climbing to the next, and seldom went to the top; but this mouse seemed to have a definite object in view and attended strictly to it.

A box of candy served to completely cement the friendship between myself and two of the tiny folks. They had been playing around and been given a lunch on the window-sill at my side,

but the candy smelled tempting and one of them soon located it, and suddenly a tiny head appeared over the edge of my lap, and after watching me intently for an instant the mouse climbed up on my lap, walked over to the box of candy and helped himself, sitting contentedly on my lap to eat it. The other mouse watched the affair from the window-sill and finally scrambled down and climbed up on my lap for his share. After that, whenever I had anything tempting, and especially if I brought my lunch, I usually had one of them sitting on my lap eating with me. Neither of them were the ones I had trained with the inclined board, as those had all disappeared long before. These two took up the trick of their own notion, seeming to think I could be trusted.

This program sometimes resulted in the familiar situation of "How happy I'd be with either, were 'tother fair charmer away," as it often happened that while one mouse would be lunching on my lap, another would ring the bell for me to "set the table down stairs." Of course the disturbance incident to answering the bell would frighten the mouse from my lap, but it would join in the feast on the floor, and usually, when that was nearly gone (or sooner if what it had been getting on my lap was better), would leave the others and climb up on my lap again.

It is difficult to say where this unusual friendship would have ended, or to set a limit to what they would have learned, but Fate, I suppose in the form of the janitor's traps in the basement, intervened, and shortly after the events just recorded my pets all suddenly disappeared.

The world is full of mice, and doubtless there will come others to take their place, but I doubt if any ever equal, in cunning ways, the friendly little souls whose loss has left such a vacancy in the daily routine.

MOUSE TALES.

Twice I have seen the "Little Furry Ones" decide that "In union there is strength."

On each occasion, two half-grown

and only half-tamed mice wanted some food which was what seemed to them a long way from safe cover. After many attempts to screw up individual courage "to the sticking point," with many brave starts and terrified retreats, they joined forces, and I saw them emerge from under cover, side by side, as close together as they could get, noses even, stepping together across the perilous distance toward the coveted morsels. But in each case, before the distance was traversed, even joint courage failed, and they broke ranks and scampered back to cover. In one instance, both failed, but the other time the braver of the two darted forward at the moment of stampede, seized a piece, and made victorious retreat with it.

* * * * *

Have you ever seen a mouse make his toilet? If not, then you have "something coming," for it is a pretty sight to watch. He goes the pet cat one better in washing his face, for he uses both paws instead of only one, as pussy does. Sitting upright, the tiny paws fly over the little face, and he does not need the reminder so often given the small boy, to "wash behind his ears." His arms go over his head and over the sharp pointed ears with a motion marvelously quick and exceedingly graceful. Then the fur is dressed and combed smoothly down, just as pussy does it, but when he gets to the long tail, he knows he cannot reach it all, so takes it in both hands and hauls it in, hand over hand like a sailor hauls in a piece of rope, scrubbing as it comes within reach, and before you can get over your surprise, it is polished off, clear to the tip, and the toilet is complete, and with perhaps a saucy little scratch of his ear, off scampers the mouse to other occupations.

* * * * *

One little fellow knows where I put my lunch when I bring it to the office, and if I delay his breakfast too long, or he gets hungry during the forenoon, I am often warned by the sound of tearing paper. I remonstrate in a loud tone; he stops and peeps around the

end of the package or over the top, looks at me questioningly, gives another tentative tear at the paper and looks at me again. I tell him that is my lunch. (tear). "Well, I haven't got any. (tear) "This smells awfully good." (rip, tear) and then I get up and get him something to eat.

From the Dog's Point of View.

(A Christmas Letter from "Jo".)

III.

St. John's N. B.

To My Mistress.

My Dear Mistress:—

First my birthday, then St. Andrew's Day followed so soon by Christmas—really, dear mistress, I cannot help thinking "what a lucky dog am I." I thought the first two days were jolly ones, but they cannot hold a patch to the fun the Jacks, Mackenzies and I had with numerous other relations and friends on Christmas. Aunt Fan told me that this was the first Christmas in thirty years that she had spent at home, and even if I am only a dog I tried to show by my actions that I at least fully appreciated the event.

The day opened frosty and sunny. I could enjoy this kind of weather if it did not bring such weariness to mind and body in trying to dig out of the ash pile some choice bones, which, carefully buried, seem beyond my ingenuity to unearth.

Though born in the United States, and chock full of Scotch blue blood as I am, yet I believe thoroughly in Santa Claus. All the humans in this house do. We did not hang up our stockings. I wondered at this, but the reason, I found out later, was that so few of the presents could have been gotten in, though I think any of my aunt's stockings would have held mine.

On Christmas afternoon, Portia, Nevill and John, the latter having come from Quebec to spend the holiday, and one Jack, started for a skate on the new lakes—all quite near. I am thankful I was not expected to put on skates; but without them I had heaps of fun hanging on to one or the other of the skater's boots.

During the day I enjoyed several

good naps without being detected as I reclined on the easiest chairs and sofas in the drawing room, for, of course, on my account the chintz had been taken off. I did not take much stock in the big Christmas dinner,



"I DO LIKE THE LADIES: SOME ARE
AWFULLY NICE AND SAY SUCH
NICE THINGS."

though I knew the old mahogany table with its silver and dishes laden with lots of good things, under a blaze of wax candles, held eatables that even I a dog, could have done justice to; but I could not get near it as the chairs were all occupied. The noise in the room was quite deafening at times there was so many ladies present, and only occasionally could I make out what was said. The human carving the turkey (a beauty raised in New Brunswick) said that he thought he

would invent a pair of X-ray eye-glasses by which the joints of the bird could be quickly discovered. He doubtless forgot there was a real Scotch terrier present who would have found no difficulty in discovering the joints had he only had a chance. But, dear mistress, there is something about these big days that causes a dog to feel heavy about the eyes. I would love to be in a position to tell you some of the smart things said by some of the ladies, if I could have kept my mind from wandering from things so closely connected with sleep and dreams. At the drinking of the King's health, I did feel quite wide-awake. When the company, all standing, each with a glass held high in the air, shouted, "The King, God bless him!" and then, all sitting, drank to "absent friends," I thought of you!

When the ladies retired to the drawing room, I went too. I do like the ladies; *some* are *awfully nice* and say such sweet things. During the evening quite a number of humans of both kinds dropped in until we were quite a big party. I found so many rather a nuisance, as some ass was continually stepping on my tail, seeming to prefer it to the carpet. I would have much preferred the carpet's getting all the weight.

The humans made some fun acting charades. The words were "Monkey Brand" and "Antarctic." Both words were really well acted, but it would not be expected otherwise, from such an array of talent as we had, Scotch, English, Canadians and Americans being there. I don't know what breed the asses belonged to.

But, dear mistress, you ought to have seen how artistically the Christmas decorations were arranged under the direction of Aunt Helen and Cousin Portia, in fir, barevine and poinsettias, and under a deer's head the mistletoe, which, by the way, you know is only used by those who cannot get kisses otherwise. A dog does not need to use it.

I think all bull dogs are conceited. I hate it in either humans or dogs. I have enough to make me conceited but

really I'm not in the least, though I am such a handsome, brown eyed Scotch terrier, a regular lady killer, and belonging, as I do, to that famous Scotch race, the Aberdeens; but the word 'Scotch' attached to your name is enough to make a dog famous, when you realize that all over the world the thousands and thousands of humans who never ask for anything but "Scotch." But notwithstanding all this knowledge, I am not, not in the least, conceited. I hope to have my handsome face and form photographed shortly for you, but I must cut this short or you will get tired reading it.

With all good wishes for 1910, and love without end, I am,

Forever yours,

"Jo."

A Goose Affinity.

BY JOHN C. UHRLAUB, GLENBROOK, CONN.

Last summer I purchased four goose eggs, which we put under a trusting hen. After the prescribed weeks of incubation, she found herself, to her surprise, the happy mother of two goslings whose very interesting history I am going to relate in the following:

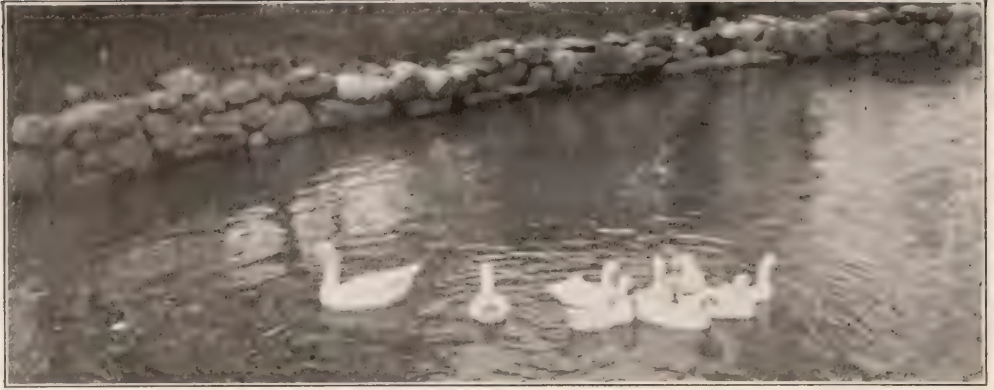
The two goslings developed into a pair of very handsome geese, one of them a snow-white gander and the other a gray goose. In the early spring, they, apparently, became very fond of each other and their wedding took place in the month of March. The first setting of eggs, which mamma goose laid we took away and confided

to a Plymouth Rock hen. The second setting, she concealed very cleverly behind an old wheel, and she is trying to raise a brood of her own. During the time that she was doing her family duties and sitting on her own eggs, her husband, whom we have since named Earl, had made a very close acquaintance of a large Pekin duck, and was promenading around, going to the pond, etc., daily, with his new affinity. I do not know whether his wife was at first aware of this flirtation; but recently, she seems to have been quite reconciled, and now, whenever she wants to get off duty, she utters a series of peculiar sounds and the affinity duck waddles as quickly as she can towards the nest, has a friendly conversation with the goose, who joins her husband for an hour or two of frolic on the pond while the duck takes her place on the eggs. Sometimes, the duck and goose are both sitting on the eggs, to the great chagrin of Mr. Earl, who is trying all his charms to get either one away from their duty of brooding, and when he succeeds his joy and satisfaction are very apparent.

As far as my observations have gone, the love between the gander and duck, is merely platonic. The question has arisen in my mind whether the acquiescence of mother goose to her husband's affiliation to the duck is a natural instinct from many generations of polygamous ancestry, or whether merely the close proximity of wicked New York, where such affinities are



THE GRAY GOOSE ON HER NEST BACK OF THE WHEEL.



THE GANDER (AT THE LEFT) LATER HAS SEVERAL DUCK AFFINITIES.

a rule and not an exception, has stunted her otherwise delicate sense of morality. During the last few days, the duck and the gander seemed to have had a serious quarrel, and the gentleman has been rather lonesome, and he has to wait a very long time, in front of the nest, until he can get either one of his sweethearts away with him to the Coney Island pond!

The Cat That "Mothered" Squirrels.

Lawrenceburg, Tennessee.

To the Editor:

Late in February a farmer living near town was out hunting and shot a couple of squirrels. He found that one of them was a young mother, so began looking about for the nest and soon found it in a near by tree. As his little boy who was with him was very anxious for the pets, he climbed up to the nest and found three little fellows not more than a day old. Supposing

he could not raise them, he put them in his pocket and took them home as an extra meal for old puss who had met with bad luck with her own family and lost all but one kitten. On placing the squirrels in her nest he expected her to pounce on them and eat them; but to his astonishment she pulled them up to her and began to purr and fondle them. She changed her nest several times, carrying the squirrels as she did the kitten. Even after the squirrels were weaned she played with them. The strange part is that this cat was raised in the woods and many times has fed her young on squirrels she had caught.

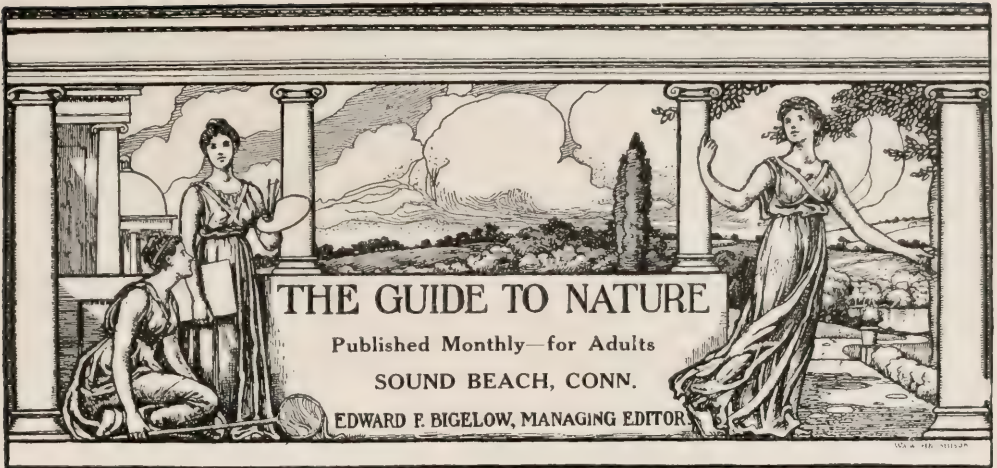
Very truly yours,

L. FRANK GUNN.

A similar story, illustrated by the frontispiece, was told by Geo. W. Irving of Waterville, New York, in *THE GUIDE TO NATURE* for May, 1900—page 70.



THE CAT NURSING GREY SQUIRRELS.



THE PURPOSE OF ARCADIA.

In many respects, the best friends of Arcadia have been the boys and girls of Sound Beach. They have always correctly understood its purposes, never misrepresented it nor lacked in appreciation. It has been literally their "home of all nature." They come frequently to observe, to inquire and to bring specimens.

A few weeks ago an invitation was extended to them to tell of "The Purpose of Arcadia." The response was almost unanimous. From the large number received, the following quotations from a few have been selected.

Prize Awards.

FIRST PRIZE—A POCKET MICROSCOPE.
"TEACHES YOU TO BE GLAD WITH WHAT YOU HAVE."

BY ETHEL CAREY.

Arcadia is often mistaken for a restaurant or hospital, which to some people seems like a joke, but it is far from being a joke. Arcadia is nature's hospital and nature's restaurant.

Some people take but little interest in Arcadia, they wonder what it is good for. They think that the seven buildings which Arcadia contains are only good to go through for a pastime or amusement. Arcadia is for other than this purpose, it is to get people interested in the thing called nature, and to get them to go out into the woods and fields and study the beautiful birds, flowers and trees which they contain.

If people would study more about nature and not quite so much of the utilitarian method of living they would find that the fields and forests were worth more to them than the money



MISS ETHEL CAREY.

"Go out into the woods and fields and study the beautiful birds, flowers and trees."

which they get from them. Arcadia teaches all these things.

If you should go through Arcadia just to see what they had it does you no good, but to go through and be



MASTER CLARENCE McGARRY.

"A place where your thoughts are heavenly and your soul is free from all temptations that may induce you to do wrong."

interested and anxious to help Arcadia in its strife for success is doing a good deal.

One day a man mistook Arcadia for a gymnasium; ordinarily people would think that a very nonsensical idea, but Arcadia is a gymnasium, but not one to develop the muscles, but a gymnasium to develop the mind and brain deeper into nature.

If men and women who are striving to make all the money they can would think of other than this they would find that it would make the world seem much more cheerful and bright to them.

Arcadia teaches you to be glad with what you have and to not be grumbling and scolding because some one else has a little more than you have. Some one else may have more money

and things of that kind and have none of the learning that Arcadia gives you about nature.

SECOND PRIZE—A POCKET MICROSCOPE.

"YOUR THOUGHTS ARE HEAVENLY AND
YOUR SOUL IS FREE."

BY CLARENCE M'GARRY.

Arcadia is a place where we may go to study the things that the Lord has given us, not the things that we read out of books, but the birds, the flowers and the trees. Arcadia means a place set apart from the hum and buzz of the city, a place where you may go and rest your mind from the toil and worry of a hard day's work; a place where your thoughts are heavenly and your soul is free from all temptations that may induce you to do wrong.

THIRD PRIZE—A POCKET MICROSCOPE.

IT WILL MAKE FRESH MINDS.

BY CLARA SCHOTANUS.

Arcadia is a lovely place when all the flowers and shrubs are in bloom. We should study nature all the time. Each day learn something new about it if you can possibly do so. Everybody should study nature, young and old. Our education is not complete without knowing something about nature, or the common objects around us. It will make fresh minds of us and will help us to be honest in our work. We hope that everybody, young and old, will understand and sympathize with the work we are doing. We will have to think about it and it will make us love the flowers, trees and birds.

Children who live in the crowded cities have no chance to run around in the fields and see what nature has done for us, because there are no large fields to run in.

Listen to the sweet carols of the different kinds of birds. Hear the squirrel chatter in the tree and see the wild rabbit play in the field.



MISS CLARA SCHOTANUS.

"Run around in the fields and see what nature has done for us."

HONORARY MENTION.

MORE KIND TO ANIMALS.

BY EVERETT MERCER, AGED 12.

Arcadia teaches us that there are many pretty and interesting things in the most common. It broadens our minds and makes us better men and women. It has made the children of the Sound Beach school more kind toward dumb animals and has taught them to see beauty in the most common and everyday things of life.

DON'T WORRY.

BY DEMAREST ADAMS, AGE 8.

Arcadia is to keep people from worrying so much.

LET ROCKS THEIR SILENCE BREAK.

BY VICTOR JONES, AGE 12.

Arcadia is built of a lot of little buildings connected together. It is planned like a park and has improved the town wonderfully by its many beautiful surroundings such as flowers, shrubbery and trees.

Everybody thinks that the rocks are dead, but they are as much "alive" as animals. If you study them you will find out the good in them.

If all the people would study nature and spend less time trying to make more money than they need they would find use in every little insect and stone.

OTHER GOOD DESCRIPTIONS.

HELP PEOPLE FORGET ABOUT THEMSELVES.

BY CATHERINE A. BRENNAN.

Arcadia is a place where the study of nature is taught; to love nature; to know her plants; trees and other things; to help people forget about themselves; to preserve the plants that are being destroyed by thoughtless people.

Arcadia is also the home of The Agassiz Association which is in itself a preserver of nature.

The study of bees and many more insects is also being carried out and many new points accomplished concerning the different kinds of insects. The study of the stars is also followed up here.

Arcadia's principal use is to help people not to be so utilitarian, to think of other things beside money, houses, to take notice, look around and see the beautiful things which God has created besides ourselves, with which to make ourselves and others happy.

"IF THEY ONLY KNEW."

BY ERNEST LARSON.

Arcadia is for the purpose of studying nature. Not only for young people but for old people also. It is where flowers and other things, that are produced by nature, are taken so people may study them, and find out about the traits and habits, how they grow and take their food from the soil.

We study nature because it not only

helps to make people love the work of nature but helps them improve their minds, helps them to study her as much as possible. They have plants of different sorts for the people to study about them. If some people only knew what good nature studying is I believe that there would be more study places for studying nature. Then people would be improving their minds much more than only thinking where the next dollar was coming from.

LOVE CREATES BEAUTY.

BY MARSHALL MACGAUGHAN.

Arcadia is a place where we study what nature has done for us. To people who do not care for plants and flowers they do not look nice to them. Every bird they see they think how troublesome they are making nests about in the trees and bushes, and singing in the morning disturbs them. Some people wish that there were not any trees, and some people that do not like birds kill them and break their eggs. When people like plants and trees they see how useful and pretty they are. If it were not for birds we would be troubled with a great many



MASTER VICTOR JONES.

"The rocks . . . are as much 'alive' as animals. If you study them you will find out the good in them."



MASTER EVERETT MERCER.

"It has made the children of the Sound Beach school more kind toward dumb animals."

more little insects which the birds eat. If it were not for plants and trees we would have very little shade except where there was a building, or no wood for fuel, or nothing to eat. If this were true there would be nothing or nobody in the world.

"THINGS WHICH APPEAR TO BE 'DEAD' LIVEN UP."

BY MARJORIE BLABER.

Arcadia teaches us to look out in the world and see the beauty in nature and the things which appear to be dead liven up. The sick birds we happen to find in a field or by the roadside we should take to our homes and make them warm and comfortable.

We should interest ourselves in nature and make it one of our principal studies and it will give us a good education because it is all around us and is easy to get for study. So we must keep on with it day by day and then we will know quite a lot. If you learn enough you can tell all the birds,

trees and fish by name when you see them which would be quite interesting.

"TO SEE BEAUTY IN ALL THINGS."

BY HEWITT BOGART.

Arcadia teaches us to see beauty in all things no matter how commonplace.

The lessons that we learn from the study of nature will very frequently guide us in the right path of life.

No one can have a thorough understanding of animals, reptiles and insects and then be cruel to them. It is only through ignorance that people are cruel or destructive.

Hence, Arcadia stands for enlightenment.

HAS IMPROVED THE CORNER.

BY LIZZIE PALMER.

A few years ago there was a vacant lot next to the Sound Beach post office which was marshy and damp. This lot was irrigated and leveled off and fine buildings were erected on it. The people often wondered what those

buildings were for; some thought one thing and some thought another. When the buildings were finished the place was called Arcadia. The buildings are surrounded with shrubbery and trees. On the outside they are inclosed by an iron fence.

The main office is a large low building with windows on all sides of it and is but a few rods from the sidewalk. Arcadia was built in the center of the business section of Sound Beach. It was built there especially for the public to give them a different idea about nature. Arcadia was built for the love of nature among girls and boys, men and women. Many people visit it to see how the bees work and toil and how the rabbits build their homes, etc.

"LEARN TO LOVE."

BY VERA PALMER, AGE 10.

Arcadia is a place to go and study about animals and plants and learn to love them.

IT IS NATURE'S HOME.

BY ANNA M. F. BRENNAN.

Arcadia is nature's home. Arcadia is for the study of nature; another use is to help perfect nature. There are some more uses among which is to take care of nature. We may go there and study about anything we want whether it be the stars, the plants, or animals.

MAKE US HEALTHIER AND HAPPIER.

BY FRANK KEMBLE, AGE 9.

Besides being instructive and interesting the study of nature's workings will make us healthier and happier for it will take us out of doors and into the fields and woods.

TEACHES NOT TO BE CRUEL.

BY MAY OFFEN.

Arcadia teaches the boys and girls not to throw stones at birds which is what some boys do and which is very cruel, and very often boys try to rob the nests of the little harmless birds. Sometimes you catch boys throwing stones at birds to see how close they can come to hitting them.



MASTER DEMAREST ADAMS.

"Arcadia is to keep people from worrying so much."

TO BE KIND.

BY HOWARD PALMER, AGE 9.

The Arcadia teaches us to be kind to all dumb animals.

HAS SHARPENED THE EYES.

BY ARTHUR MIDDLETON, AGE 11.

Arcadia was built to give the people of Sound Beach an opportunity to study nature. It has already broadened the minds and sharpened the eyes of many children in Sound Beach to see good in apparently useless things. It teaches us to know that there is something in life beside earning our bread and butter, and also teaches us many things about our Creator.

From a Learned Point of View.

Within about a half-mile of our Arcadia dwells Merwin-Marie Snell, Ph. D., well known, not only locally but in all parts of the world, as philosopher, scholar and writer on philosophy, anthropology and comparative religion.

While the young people of the Sound Beach graded school were writing on "The Purpose of Arcadia," it seemed of interest to request Dr. Snell to give the most advanced views of the study of nature in relation to the various religions. While he writes learnedly, he also

makes the subject clear and interesting. It is of much value to note the opinions on this subject of a man who was president of the Scientific Section of the World's Congress of Religions and who has held many other important positions, as shown by the following biographical data:

1881-1889. In the scientific service of the U. S. Government, under Professor Spencer F. Baird (Smithsonian, U. S. National Museum and U. S. Fisheries Commission). In 1882 also Clerk of the U. S. Senate Committee on the Revision of the Laws, and secretary to Senator Jno. F. Miller, of California.

Member of the Philosophical, Biological and Anthropological Societies of Washington, D. C., and of the National Geographical Society.

Published "Sacred Books and How to Study Them." Contributed poems and prose articles to various publications.

1889-1892. Secretary to the Rector of the Catholic University of America, and lecturer on comparative religion there.

Member of Sons of the Revolution and Sons of the American Revolution. Published "Hundred Theses on the Foundations of Human Knowledge." One of original organizers, with Prof. Harris, U. S. Commissioner of Education, Major Powell, Director of U. S. Geological Survey, and eight others, of the Society of Philosophical Inquiry. Took part in international scientific congresses, lectured at summer schools, etc.



THE HOME OF MERWIN-MARIE SNELL, PH. D., NEAR ARCADIA.



A VIEW OF THE BAY AND THE SOUND FROM DR. SNELL'S GARDEN.

1892-'3. Lecturer on Comparative Religion in Theological Department of Howard University, Washington, D. C. Editor of the "Oriental Review." Then Oriental Secretary to the Committee on Religious Congresses of the World's Congress Auxiliary. Was President of the Scientific Section of the World's Congress of Religions, Chicago, 1893, permanent presiding officer of the World's Congress on Ways and Means of Universal Religious Unity, and first chairman of the World's Congress Extension Committee.

Regular contributor to the N. Y. Independent and the Chicago Open Court and Monist. Made the authorized translation of "Ribot's Diseases of the Will."

1894-'5. Public lecturer. Published annotated college edition of "Matthew Arnold's Sohrab and Rustum"; wrote most of the letter-press of the "Glories of the Catholic Church in Art, Architecture and History"; translated and edited "Bertillon's Signaletic Instructions" and adapted his system of signaletic notation to American use. Regular contributor to the comparative religion department of the Biblical World of Chicago University.

1896-9. Editor "The Church Progress," St. Louis.

1899-1902. President of Albertus Magnus University, Wichita, Kansas.

1903. Special writer on staff of the General Press Bureau of the Columbian Exposition, St. Louis.

Since 1903 devoted exclusively to philosophical study and writing. Has at various times contributed to the International Review, Arena, Cosmopolitan, Andover Review, New Englander and Yale Review, Mind, Dublin Review, Etudes sociales, The Hindu and various

other periodicals in this and other countries.

Dr. Snell's paternal grandfather was the nephew of William Cullen Bryant, and his paternal grandmother was the grand-daughter of Jonathan Edwards. His maternal grandfather was Gerard Hallock, of New Haven, ante-bellum editor of the New York Journal of Commerce.

The Religious Ministries of Nature.

BY MERWIN-MARIE SNELL, PH. D., SOUND BEACH, CONN.

The groves were God's first temples; ere man learned
To raise the shaft and lay the architrave and
spread the roof above them
In the darkling wood, amid the shade and
silence, he knelt down
And offered to the Mightiest solemn thanks
and adoration.

—Bryant's Forest Hymn.

Not only did our first ancestors worship in the naves of the forest, beneath the dome of heaven, in the shrines of nook and dell and on the altars of hill and mountain, but in all ages and lands, even where the most glorious temples of inspired art have not been lacking, men have tended to associate their supremest experience with the manifold beauties and grandeurs of the world around them.

If it was from Sinai that the thunders of the Divine Law came forth it was no less in the groves and on the high places and "under every green



"THE LITTLE CORNER OF A GARDEN MAY CONTAIN MORE WISDOM THAN A THOUSAND BOOKS AND MORE INCENTIVE TO PIETY THAN A THOUSAND SERMONS."

tree" that the worshippers of Baal and Ashtaroah paid their devotions. In the forests of India and Yucatan are the ruins of prehistoric shrines; throughout Celtic Europe the Druids conducted their mysterious rites in the shadow of the oak be-candled with the sacred mistletoe; and many a Christian church and abbey arose on a mountain peak or above a cavern which for unnumbered centuries had been consecrated to the adoration of the old gods of our first historic progenitors. Thus it was at Mont St. Michel on the coast of Brittany; which pilgrims were wont to visit on their way to the Holy Land, carrying with them as a souvenir of the spot a scallop-shell from the neighboring sands, and so it came about that the scallop-shell became for a long time in life and perpetually in the heraldic art the badge and symbol of the palmer.

In Farther Asia the most beautiful scenes have become the setting for a temple of Gautama, of Amitabha or of Kwan-yon; the eyes of the children of the Rising Sun turn lovingly to the holy mountain Fujiyama—the very

name of which means Buddha-monastery-mountain; and at the edge of the chasm into which sinks the mighty cataract of Victoria Nyanza the Afric tribesmen used to gather from half a continent to adore the God towards Whose high throne the Seven Columns of rainbow-tinted mist ascended night and day before their awe-struck eyes like the smoke of incense from Titanic censers. In the most picturesque parts of Europe the silent hymns of Nature are punctuated with wayside shrines and hill-top calvaries; and across continents and seas the Christ of Montmartre and the Christ of the Andes alike proclaim the truth that only the sublimest of God's works are worthy to be the pedestals of the most prodigious symbols of human aspiration.

So inseparable is Nature from religion that if she were All she would herself rightly and inevitably be a religion and her culminating mysteries would become again, as they have always been among races who knew of nothing beyond the ken of the senses, the objects of enraptured adoration. But the religious progress of

the world has been a progress from the worship of Nature for herself alone to the worship of Him whom she so admirably reveals.

There are those who tell us that science has dethroned the Almighty, annihilated spirit, abolished Heaven and Hell, given a rude and final awakening from the age-long dream of immortality, and sent all gods and angels and devils and departed souls to join the dryads and fauns, the jinns and nagas, the gnomes and brownies, in the No-man's land of a discredited mythology and folklore. But when they attempt, as does Haeckel in his *Riddle of the Universe*, to show why and how the discoveries of science have had these effects they are unable to point out a single one that has any bearing on their argument. Christian and Mohammedan and Hindu theology and religious learning have been developed with a full concurrent knowledge of what Haeckel calls the Law of Substance—that is to say the persistence of matter and the conservation of energy, the changelessness of the sum-total of matter and of force; and centuries before Christ the law of evolution was taken for granted, as the most certain of all truths, by the Sankhya philosophy of the East and the Ionian philosophy of the West.

In spite of the noisy declamations, in a contrary sense, of certain popularizers and "readers of scientific literature" who profess to speak in its name, natural science as a whole is now, and always has been, sober, reverent and religious. Those who repudiate religion, or all supercorporeal realities, in the name of science, do so either because they have been led astray by a false metaphysics or because they have tried to learn and explain, by the data afforded in the detailed story of Nature, that which belongs to an entirely different field of human thought and endeavor. The real scientific workers, those who are actually making the experiments and syntheses which furnish to the popular scientific philosophers their materials, are for the most part, taking the world over, earnest and devout men who—

like Agassiz, Newton, Mivart and Thompson, like Ampere and Pasteur—read reverently the Book of Nature as an Elder Scripture writ by the very finger of God and proclaiming His goodness and glory in every page and line and character.

The bitterest of the scientific enemies of spiritual religion blaspheme Nature as well as God; for they follow out the negations of Scientism to their logical conclusion in the Philosophy of Disillusion, consider Nature itself as quite as unknowable and illusory as spirit and make scientific experiment as meaningless and worthless as theo-



"There is not an animal, a plant or a stone that does not proclaim in unmistakable accents, the glory of the Creator."

logical investigation. Yet even these, while claiming that the Instinct of Knowledge leads to disillusion and universal doubt, acknowledge that the Vital Instinct—which will always be dominant in the race at large since those who are deficient in it inevitably succumb and are sooner or later eliminated, root and branch, by inexorable laws—impels men irresistibly to faith and adoration (see Thorold, *Six Masters of Disillusion*, Epilogue, p. 161). And nothing so feeds the Vital Instinct as a life close to Nature; as is shown by the fact that the rural populations everywhere have the most intense religious life and adhere most persistently to their ancestral religion, be it true or false, which is strikingly illustrated by the words "pagan" and "heathen." Both of these meant originally "country-folk," and derived their present sense from the fact that it was the peasantry (*pagani* in Latin) in the south of Europe who clung longest to the old Græco-Roman mythology and, later on, the peasantry again (*heathmen*) in the north and west who were slowest to give up the Druidic cult or the mythology of the Eddas.

To the seeing eye and the open heart Nature is a revelation of religious truth, an inspiration to religious emotion, a sedative to rebellious passions and the nursery of every virtue. From her, poets and prophets so diverse in nature, in environment or in creed as David, Francis of Assisi, Wordsworth and Bryant have received the sweetest strings of their immortal lyres. There is not an animal, a plant or a stone that does not proclaim in unmistakable accents the glory of the Creator. In the numberless trines of Nature, rooted in the fundamental triplicity of matter, presentation and inclination into which, in the language of Haeckel, every visible thing is analyzable, there appears the seal of the Infinite Trinity. The whole structure of Nature points as clearly to the spiritual above as it does to the aetherial below. Every change is a vista opening back to the Universal Beginning; all evolution, progress or growth is a prophecy of the Final Consummation; all generation

and causality cries aloud of the First Cause; all motion leads up to the First Mover; all space proclaims the Super-spatial; all time is eloquent of Eternity.

Nature as a whole is explainable only as the multiple finite revelation of the Infinite One, to Whom it bears a relationship suggestive of that between the solar spectrum and the undivided sunlight. In its sublimer phases and in the incredibly mighty energies locked up in its most inert parts it reveals and symbolizes the Divine Power; in the vast plexus of its harmonious and co-operative causalities it reveals and symbolizes the Divine Wisdom; in its illimitable utilities, its effective consolations and its matchless inspirations it reflects and symbolizes the Divine Love. If in the turmoils of the thoroughfare and the marketplace it is hard to believe that God is good, we find in the whispering woodland, the gracious meadow, the cool ravine, the sun-bathed mountain-top, the palpitating sea, a surcease of doubt and a new consciousness that all is well.

The little corner of a garden may contain more wisdom than a thousand books and more incentive to piety than a thousand sermons. Who can be prayerless amid the oraisons of the flowers? Who can be ungrateful while the birds are sending up around him their psalms of praise? Who can be sordid or impure amid the infinite chastities of a midwinter noontide? Who can be proud and disdainful among the violets and anemones on the margin of a purling rivulet in springtime? Who can harbor hatred or discontent when the raptures of a midsummer's dawn are thrilling up around him to the very Heart of God? And who can be hopeless or despairing when the holy angels are ascending and descending on the golden ladders of an autumn sunset?

The love of God is at the very core of practical religion; and all the beauties of Nature, when they are felt and seen and known to be, as they in reality are, mere sparks of the Beauty of God, are so many incentives and inspirations to the love of Him. Even

George Eliot, Agnostic though she was, felt obliged to confess that the most perfect experiences, whether of Nature or of art, carry with them an irresistible conviction that they are "mere waves and ripples in an Unfathomable Sea of Love and Beauty."

The unbelieving student of Nature is usually to be found among the Men of the Closet, the cold dissectors and classifiers of dead things, not among the Men of the Open, the real lovers of Nature, who live close to her heart; not among those favored ones around whom, day by day and hour by hour, a myriad little furred and feathered and scaled and leafy and crystal-hearted devotees are telling the beads of the Rosary of Life.

No one can give us what we are not ready to receive; he who is wholly and obstinately engrossed in petty cares or greeds or ambitions, enslaved to brutal passions, shut up in a shell of vulgar egotisms, may find himself deaf and blind to the Messages of Nature; but he "the knot of whose heart is unloosed," in the significant phase of the Vaishnava and Sufi mystics, will gain more and more incentives to adoration and piety and love and virtue the more he frequents "the school of the woods"; and he will find, even now as in the beautiful allegory of Holy Writ, "the Lord God walking in the garden in the cool of the day."

The Works and the Word.

The Reverend Doctor Bela B. Edwards, one of the most distinguished of our American theologians, says on this subject:

"The eminent Christian, other things being equal, is the most diligent student of the Works and of the Word of God. Such study is well fitted to enlarge and liberalize the mind. We are placed in a creation adapted to awaken the deepest interest. The works of God are marvelous; they are sought out by all who have pleasure therein. And who can refrain from having this pleasure? Who can be an indifferent spectator amid the changes which are going on around him? Instead of wonder that some

men are willing to toil a life long in the study of the works of God, the wonder is that all men are not captivated with the pursuit. These studies are called the natural sciences. They are rather the Divine sciences; they are fitted to move the mind of man to its lowest depths. Whoever hath an ear may hear. The dull rock has a voice; the dry leaf has a sound; the shell on the ocean's shore is not dumb. It is made according to certain laws. It fulfills its destiny with unerring precision. We may be lost in general admiration while gazing upon it; or we may scientifically analyze it as a piece of consummate art. Now the earth is full of such objects. The common Christian may become acquainted with them, and through them adore their Creator. The Christian scholar will find in these objects inexhaustible themes for delightful contemplation. God invites him, and a thousand voices from His works reiterate the invitation. The doors of universal nature are before him. Has he not a key in his own mind to unlock them all? No assignable limit can be set to the material universe. Can any assignable limit be placed on the powers of the contemplating agent?"

The Waves.

BY EMMA PEIRCE, NEW YORK CITY.


Old Neptune's steeds are cantering in,
Their white manes tossing free,
With the freshening breeze from off the
shore
Which greets them saucily.

Tireless e'er, and riderless,
They speed upon their way,
Obeying, all unconsciously,
A power higher than they.
Right martially they troop along,
Bright shining in the sun,
Till on the firm, unyielding sand,
They're vanquished, one by one.

We very much enjoy your paper, and it will be bound to have a wide circulation when well known.—*W. H. Laws, Beeville, Texas.*

Every copy is a "feast of good things.—*Kate A. Jones, Grantham, New Hampshire.*

CORRESPONDENCE AND INFORMATION



Potato Seed Balls.

Orient, Long Island, New York
To the Editor:—

Was much interested in what you said regarding the potato seed in April issue, and your request for same. Will send you some in August or September.

For more than ten years I have noted the seed balls on our home fields here at Orient, Long Island. In August of 1908, I collected a quart of balls from the Green Mountain variety. These were opened when green and the seed removed and dried near a stove. On January 1, 1909, the seed was planted in a shallow wooden box, slightly covered with soil and placed in a south bay window. In three days the young plants were above ground and growing rapidly. They more nearly resembled young tomato plants than anything else I could think of.

After reaching an inch high they grew very slowly. The largest plants never exceeded three inches in height or contained a leaf more than half an inch in length. The last plant died the second week in July. Several small white tubers about the size of dried peas were found on the roots of the few largest plants. These were again planted, but pressing work at that busy season caused the experiment to become neglected.

I noted that the life of the plants from seed was much longer than that of those from tubers. The latter when planted in fields hold green usually about five months, while many of the plants from seed remained green for seven and a half months.

Seed was also collected from the Early Rose and the Early Ohio varieties. These two have been very prolific to the growers for years back, but

have now run their course and are seldom planted.

The late varieties, as a rule, seem to be more generous bloomers than the early, but we have an elegant exception in the Irish cobbler, a newer variety, with large, round, white tubers and large, thrifty vines and luxuriant, dark-green foliage topped profusely with clusters of splendid purple flowers. Fields of these are a magnificent sight.

There has a very recent variety been introduced known as the Norotton beauty. We have tested it four years on Cedar Lee farm, and have failed to detect a blossom or even a bud thus far.

As a farmer and amateur naturalist I find the potato a fascinating study. There is truly much of interest in it beside the necessary matter of dollars and cents.

ROY LATHAM.

Glass Cheese Cover for Aquarium.

Duluth, Minn.

To the Editor:—

Am much in sympathy with your trials with all glass aquaria, but wish to put in a plea for one which I think might be left out of the general curse, and call your attention to it in the hope that it may prove as great a comfort to you as it has to me. I have a square tank of good size, which is the regular goldfish aquarium, but that does not begin to be enough. The 8-inch battery jars answer fairly well for the temporary abode of the spoils of a collecting trip, for though they crack in the end, they last quite a while and are cheap; but wanted another large tank and the square ones are expensive; so when opportunity offered to purchase one of the old fashioned glass cheese covers from a grocery store, I

tried it, and have taken no end of comfort with it since. It has been in almost constant use for nearly four years, in sunshine and shade, heat and cold, full and empty, and has never developed the slightest crack. It is seventeen inches in diameter and ten inches high, and only cost \$3.25, which is much less than a square tank of equal capacity, and as it is so large and is only curved in one direction, the contents are not distorted, as with the compound curve of the fish globes, and the open top allows free circulation of air.

Of course there is the glass knob which served as a handle, which must be allowed for, but it is easy to set the tank on an earthen jar or something which allows the knob to project into its interior, out of sight. Quite probably there are degrees of excellence in cheese covers, but mine is fine clear glass, with the edge reinforced by a thick rim.

A small cover, of similar shape but only about ten inches in diameter, with a small jardiniere for a base, has served intermittently for several years as an ornament for the center of the dining table, in lieu of fern or flowers. Have white sand and a few white quartz pebbles in it, and when perfectly clean and clear, with bright green plants and a few tiny fish (small enough not to look crowded even in the small aquarium) it is indeed a thing of beauty, and has been much admired.

It is a pity that more people, who cannot afford, or have not room for, a large tank or globe, do not appreciate the advantage of using several tiny fish, whose small size makes the globe appear large and roomy by contrast, and which really have room enough to be both comfortable and happy; whereas a pair of three or four-inch fish can hardly move without bumping their noses against the glass, and look (and are) crowded and unhappy.

Yours truly,

NELLIE B. PENDERGAST.

You are doing a good work, and I hope to see it prosper.—*Otis W. Caldwell, North Cambridge, Massachusetts.*

Interesting Experiences with Song Sparrows.

Nirvana, Stamford, Conn.,
December, 1909.

To the Editor:—

Perhaps you will be interested to know that for the past four days I have had a song sparrow feeding at my sit-



THE SONG SPARROW AT THE WINDOW.

ting room window, both morning and afternoon.

There are broad shelves outside of the windows, and beyond these are the long boxes, now bare of flowers, but in which I have kept the soil and on which I toss seed and other food for whatever hungry bird I might be lucky enough to coax there.

The enclosed photographs will explain and also show the bird.

For the past four or five years I have in spring and summer, song sparrows, chipping sparrows, robins and an occasional cat bird or oriole; but I have not had any luck in the winter months until now.

I had read in many of the bird books that the song sparrow was so very shy that he was a difficult bird to get near to; so of course I was delighted to find them so friendly; and now to have one visit the windows in almost mid-winter is a satisfaction indeed.

I have never seen a song sparrow quarrel with any other bird; no matter of what species; so the following may seem almost incredible, yet is absolutely true:—In the beginning of my friendship with the birds I had no end of trouble with English sparrows, for of course they discovered the food at once and it took great perseverance to get rid of them, as at first, when I frightened them away the other birds flew too. So I had to contrive various ways of hiding myself from the birds I wanted, but in full view of the intruders at whom I made gestures as fear-inspiring as I could invent. In time, (would you believe it) the chippies and song sparrows soon came to understand that my "shooing" was not intended for them, and what is more, they became my allies and themselves often took a hand in ousting the enemy, then would return and proceed with their interrupted meal.

All this was wonderful enough to me, but something even more so occurred on Sunday, and which makes me think my little winter visitor must be an old friend.

You must know that it is nearly three years since I and the song sparrows finally succeeded in stopping the English sparrows coming to my bird's restaurant: also that until the other day I had not seen a song sparrow since late last October.

Last Sunday when I returned from a walk, I was pleased to see my little friend feeding on the window box; but I was annoyed to hear a noisy English sparrow evidently close by. Yes, there he was, on the shelf, so near the window that the frame work had hidden him. Here was a dilemma! How to get rid of him without losing my new friend! I felt certain that to approach within plain sight at all would send off the song sparrow, and was most

agreeably surprised that he stayed while I slowly wormed my way close to the wall and as hidden by the lace curtain as was possible.

Once there I managed to frighten the uninvited rascal, but he dared to wonder if he dared to stay. I was then in no mood to be the one to give in and started to show him who was "boss," when, to my horror, I realized that my hand was in plain sight of the other bird. He started to fly and I lost all hope; but, bless him! he flew at the English sparrow sending him off in such a way that I wanted to shake hands with my little partner.

I have never been one of those whose love for animals leads to attributing to them all sorts of human powers; but if ever there was a case that looked as if the animal possessed reasoning power, surely this was one. Before I entered the room both birds were feeding, apparently without noticing each other; and not until I showed a desire to drive one away did the other object to him. What is one to think? It certainly looked as if the song sparrow were an old friend who remembered our former troubles with this pest of Bird-dom. I might even be tempted to tell you that it was plain to be seen that Mr. Song Sparrow noticing my difficulty with a rowdy robber, said, "What impudence! my dear old friend, I never dreamed that the fellow would dare to defy you, or I would have sent him about his business before?"

I must not omit to add that having driven off the un-wanted one, my visitor returned to his interrupted repast as if nothing had disturbed it.

One day in early March, three or four years ago, during a snow storm that would have been called a blizzard had the temperature been lower, five or six song sparrows fed at my window nearly all the afternoon. I was within less than three feet of them and it was a pretty sight: the snow was falling so fast that they had to scratch for every seed, which they did with both feet at once. One little fellow was polite enough to interrupt his meal while he flew to the nearest

tree, sang a couple of moments, then returned to the window shelf. No wonder these birds have been named "the darlings of the song birds."

The English sparrows have always been a stumbling-block in the path of the bird student; they are the cause of many a "tragedy of the nests"; to say nothing of their depredations in the chicken yard, where no doubt they consume a very large portion of the grain and other poultry food. But their worst feature is their malicious cruelty. I write solely from my own experience, for I have seen sufficient evidence of this not to need to refer to any of the authorities who have already expressed a like opinion. I have seen them while their own young waited to be fed, fly to a wren's box, the entrance of which was too small for the sparrow to enter, and work trying to pull out the nesting material for fifteen minutes at a time; and keep this up at intervals all day for over a week. I have seen them fly to a robin's nest high up in an elm, and deliberately pull away some of the dried grass, only to let it float off on the breeze. The way they have harassed my blue birds that were formerly so numerous in the old apple trees, has been shameful; and I fear they have succeeded in driving them away altogether; for I cannot see that the one pair that nested in a box in a pear tree last spring has come back. I believe this pair of blue birds to be the same that has for years, nested in a hole in the trunk of an elm tree off at one side of the pear orchard, for it was pitiful to see their efforts to keep that home; but the sparrows pestered them so that they built in the box I had put up and returned to it every spring for three seasons; and now it looks as if they had been driven from that too. I could relate many more such instances of wanton cruelty on the part of these detestable birds, but space forbids.

It seems strange that the importation of this bird and the subsequent results, did not teach a lesson that would at least have kept us from repeating such a deplorable mistake: but alas, no! Another foreign bird has

been thrust upon us for our sins, and if such a thing is possible they are even more objectionable than the English sparrows. I refer to the starlings. They too, are English, and like the sparrows are very hardy. I have not seen as yet evidences of their being deliberately cruel; but the hideous noises with which they fill the air and the alarming rate at which they are increasing, makes me believe that before long they will be considered quite as much a nuisance as the sparrow. That they drive off the blue birds also, I have plenty of evidence; but I feel sure it is done in the effort to appropriate the hole in the trees; for they even try to oust the flickers. They *will* have holes to nest in at any cost; so I cannot help feeling that they have helped to keep away the blue birds. They raise three broods a year and I think lay six eggs each time, but of this I am not positive. These two foreigners and our own grackles must prevent hundreds of more desirable birds from nesting near our homes. I have seen grackles steal eggs and very young nestlings from robins' nests and they (the grackles) are also increasing at an almost incredible rate.

Is it not sad that this is not the case with the more desirable birds?

Sincerely yours,

NATHALIE BONNER.

The Texas Tarantula.

San Antonio, Texas.

TO THE EDITOR:—

I take pleasure in sending THE GUIDE TO NATURE a nice photographic view of a huge Texas tarantula captured by Private A. F. Denton, of the United States army, in a camp near Fort McIntosh, Texas. It was sent to me alive in a well secluded box and later placed in an extra secure wooden box with a glass pane attached, through which the photograph herein was prepared in sunlight. The box had been prepared by Dr. A. Lange, veterinary surgeon, who placed a freshly captured rat with the tarantula. The latter killed the rat after a few inoculations with her powerful poison fangs in about five hours, showing the venomous character of this type of



THE TEXAS TARANTULA.

tarantular. I prepared the accompanying photograph of two poison fangs of such tarantula (sent separately by Mr. Denton) showing the artificially opened mandible in one of the specimens, and the venom canal in the claw of the other, slightly magnified.

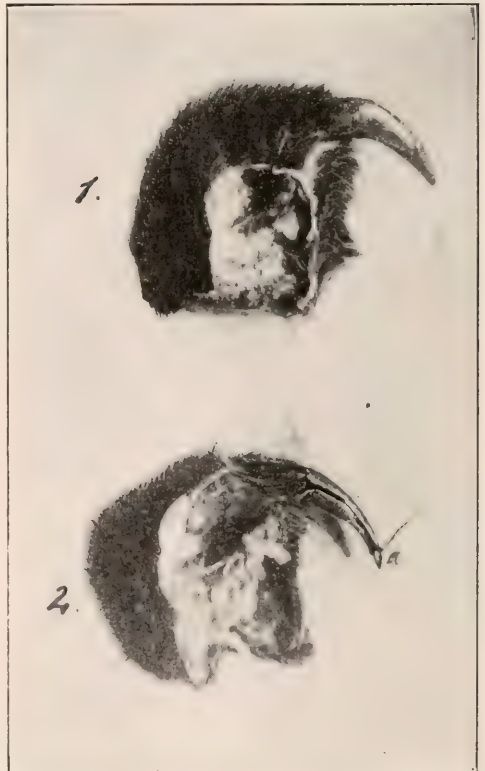
The venom is stored up in the mandible cavity which communicates with the main cavity of the poison fang, as seen in the opened specimen. The latter has a very minute outlet at the upper curvature (a) of the fang near its apex, resembling in this respect the mechanism of the rattlesnake's fang. Both of the mandible cavities were filled with a peculiar whitish and glittering material and muscular tissue (on microscopic examination). The mandible and fang consist, externally, of a hard, dark brown shell, and both mandibles are covered with black hairy bristles. When in the act of inoculating its victim (and as noticed by me and Doctor Lange in the rat case) both mandibles are put in motion in an erect posture, and both fangs are also erected when they are plunged into the flesh of the victim and a minimum quantity of the deadly venom injected

into the tissues. Once injected this poison acts slowly but surely, gradually paralyzing the motor centers and respiration.

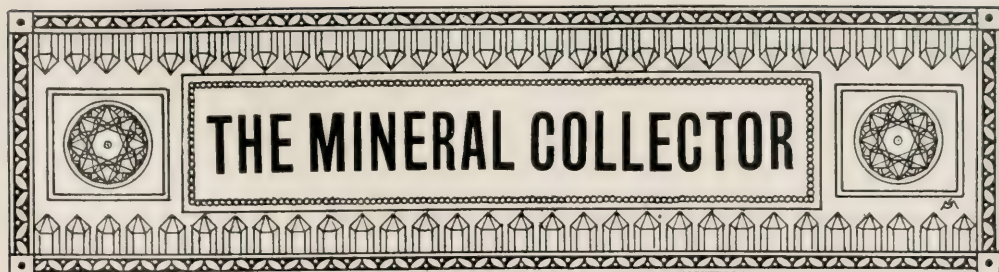
Yours truly,
R. MENGER, M. D.

Am well pleased with your magazine. It gives an educator a mint of inspiration along the line.—*Chas L. Dry, Palestine, Illinois.*

You have noticeably improved the appearance of all illustrations printed therein, over former issues, and my view, has been very faithfully reproduced. Mr. Huntsinger's admirable flower studies are exquisitely rendered, and his article most interestingly instructive; likewise the leading article by yourself. My friends who have already received the "monthly visitor" are loud in praise of it.—*Frank P. Jewett, Orange, New Jersey.*



THE FANGS OF THE TARANTULA.



Address all correspondence to Arthur Chamberlain, Editor, 56 Hamilton Place, New York City

Some Beautiful and Interesting Minerals.

Part II.

V. Halite, Stassfurt, Prussia.

This salt specimen from Prussia shows cubic crystals much like those from California. They are, however, much larger than the former, and are colorless and transparent. Like the others, they are more or less composite.

Halite occurs at Stassfurt in very great quantities. Near Berlin, at Sperenberg, an artesian well was sunk through such a deposit for nearly

four thousand feet, without reaching the bottom. Such a thickness is remarkable, and the geologists have theorized much concerning its probable mode of formation. The most of the theories usually applied will not fit this case. It seems, however, that a marine deposition, with a constantly sinking sea bottom, might give a chance for the formation of such a deposit.

The mines at Stassfurt have attained great size. It is said that in the course of time the miners have established whole villages underground, and it is



V—HALITE FROM PRUSSIA.



VI—CALCITE, CUMBERLAND, ENGLAND.

even said that many persons are born, live, and work, and die there, without ever having seen the daylight.

Much of the halite is of remarkable

purity, like that shown in the specimen, and much of it, though not in free crystals, breaks with well developed cleavage into transparent cubes.



VII—CALCITE, CUMBERLAND, ENGLAND.

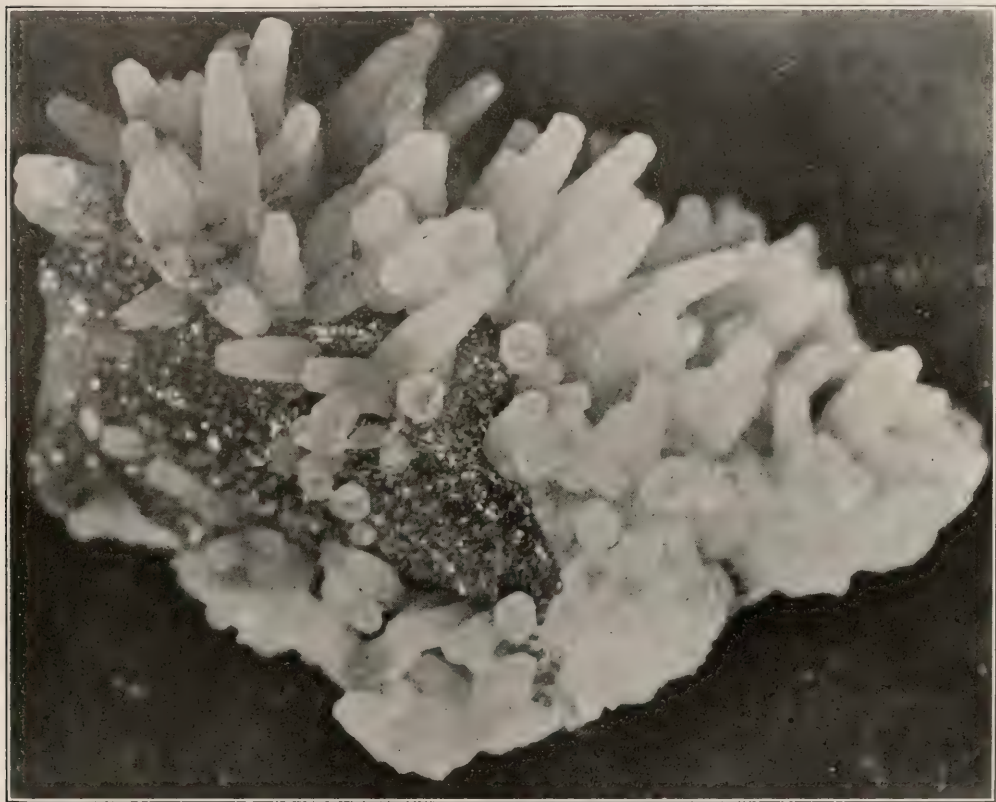
Some exceptional cleavages show a blue color, which has been attributed to finely divided metallic sodium enclosed in the salt. Other mineral salts occur with the halite. Among these is the chloride of potassium, which is sometimes nicely crystalized.

VI. Calcite, Egremont, Cumberland, Eng.

Smaller crystals of similar shape are grouped in parallel position along the sides of the larger ones giving a pine-tree effect, which, with the delicate cream color of the mineral, makes the whole very attractive.

VIII. Calcite, Cumberland, Eng.

The curious calcite crystals, grouped on pyrite, which are here shown, form



VIII—CALCITE, CUMBERLAND, ENGLAND.

Because of their beauty and interest, the English calcites usually come in for a share of our attention. The typical crystals here shown are transparent, colorless, and perfect in form, and scattered in all positions over the matrix. They are composed of the usual prism and steep hexagonal pyramid, cut off at the termination by a rhombohedron. These crystals often show a pretty red color, which is due to hematite.

VII. Calcite, Cumberland, Eng.

This shows a large number of crystals of a steep rhombohedral types.

a specimen that, for the very eccentricity of its formation, arrests the attention. Long, tapering spires, with rough surfaces, horizontally ridged, as if composed of large numbers of discs placed with their flat surfaces together, with steadily decreasing diameters, rise straight from the matrix. The summit of each spire is a flat plane.

It is claimed by dealers that the showy minerals from the English mines, formerly obtainable in large numbers and variety, nowadays are ruined by the enormous charges of explosives used in the modern mining

methods employed. It is certainly true that all of our most prized minerals from those mines are of the most fragile character, and would be very susceptible to damage of this kind. Among these are fluorite, calcite, galena, sphalerite, siderite, hematite and pyrite.

IX. Calcite, Guanajuato, Mex.

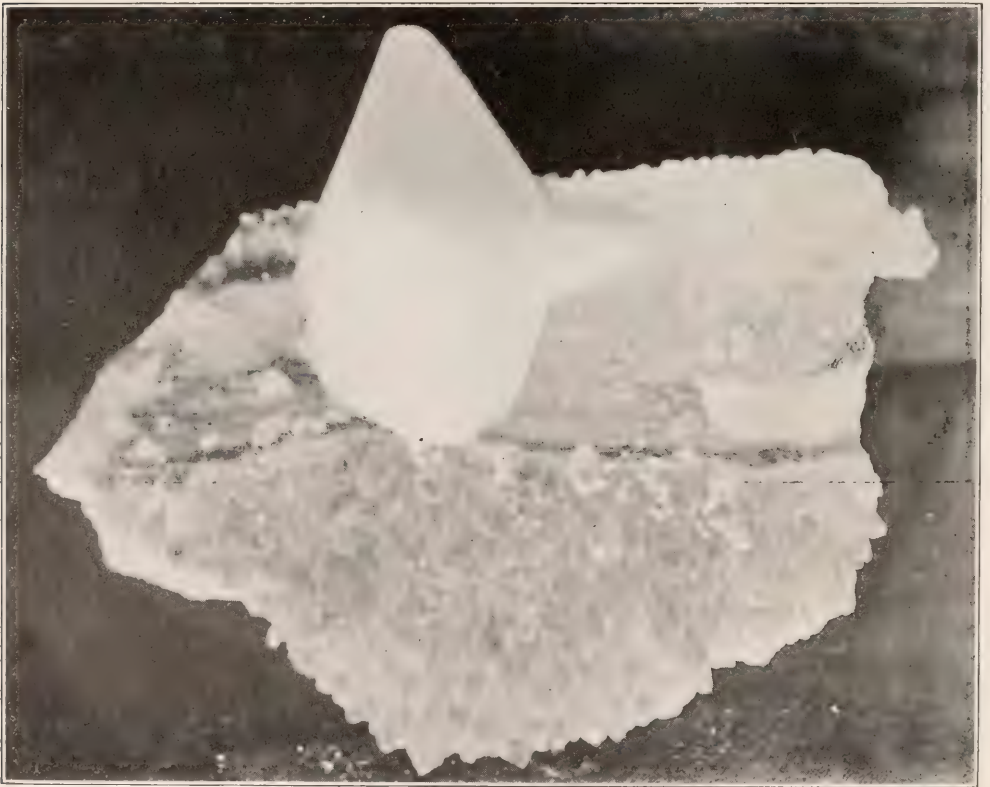
This is a handsome specimen, showing a beautiful snowy white crystal, three inches long. The crystal itself is pure white within, and has a thin, transparent coating of calcite completely covering it. It is the common combination of scalenohedron and rhombohedron. It rests against a greenish background, covered with little calcite crystals. The crystals on the front of the specimen are clear

quartz, of a very fine, deep amethyst color. This makes a combination very pleasing to the eye.

The specimens from Guanajuato are famous for their beauty and perfection, the combinations of snowy calcite with amethyst quartz and apophyllite can hardly be outdone by any other locality in the world.

X. Calcite, Guanajuato, Mex.

These crystals seem to most resemble hexagonal plates, they are peculiar, however, in that the rim and centre of each one is raised, leaving a circular trench between. The edges of the crystals are highly modified, and their color is a beautiful snowy white. All considered, this specimen is a very good representative of the best that Guanajuato has given us.



IX—CALCITE ON AMETHYST FROM MEXICO.



X. CALCITE FROM MEXICO.



Not a Bargain Counter.

We find that some persons when solicited to become members of the AA treat the matter as a business enterprise, carefully weighing the cost and asking what they are to get for it. It is evident from the financial report that we have published that from this point of view they get from their membership fee the satisfaction of helping to pay for the actual cost of our publications, because it is there shown that the income from advertising and subscriptions does not meet the outgo.

But aside from this it seems to me that the question should not be how

many letters of information I shall receive, nor how much literature I shall have to file away, but is the cause a worthy one, does it help those who need help and cannot pay for it. If so, then give the membership fee freely and regard it as a good investment even if no letter or other communication should ever be sent out.

It is peculiarly true that as soon as you try to inspire others with a love of nature the more you give the more you will receive. The same is true with an endeavor to inspire others with a love of music. The more you give the more are your own skill and love increased.

A Retrospect of the Report.

The financial report of The Agassiz Association with certificates of the auditors, on page 27 of our May number, is worthy of careful consideration.

It shows several important facts:

1. That THE GUIDE TO NATURE cost \$3037.33, and brought in \$2111.81—deficit of \$925.52. This was made up by AA dues and contributions. The logical conclusion is that this magazine is distributed for the good it may do, and unless you are a member of the AA or have made a gift to it, you have not been aiding in this cost.

2. The subscription that you pay is not equal to the cost of what you receive.

3. That the president of the AA and the members of his family, who most intimately see the workings of the organization, have such faith in the AA that they work without pecuniary pay and in addition contribute \$666.53.

4. That the report is an open invitation for you to cooperate in the work and to aid it.

Doing vs. Saying.

I believe it no exaggeration or misrepresentation to state that the great effort of the schools is to train their pupils to say correctly rather than to do efficiently. And I shall not contend that it is not important to say things correctly. But should that be made the chief desideratum? Perhaps the schools should deal more with the mental than with the physical; should train the brain more than the muscles.

But the school should not omit all muscular doing, and be content with merely a little muscular exercise—in the perhaps ten minutes a day of calisthenics.

Nor should nature study be limited to observation and the muscular exercise of an occasional outing.

In recent years there has been much pedagogical fondling of an overworked term, correlation, in connection with nature study.

Nature interests have been so correlated in geography, grammar, music

(ad nauseam), language and even mathematics that hardly a vestige of nature interest remains. One textbook of nature study actually has mental arithmetic based on such things as the number of rings in the abdomen of a dragon fly, the joints in the antennae of butterflies, the petals of flowers.

The teaching of nature may safely be correlated with athletics and manual training. A five mile walk in "search of objects one loves," up the hill, down the ravine and across the fields, is better than the same distance around and around in pursuit of one monotonous ball.

Correlating nature, by aid of a good set of tools, in making plant boxes, bird houses and insect nets is better than engraving Chinese hieroglyphics or carving "patent bootjacks." The real in the training of the hand and the eye is better than the fanciful.

A visitor at a manual training school intently watched a rattle-brained boy carelessly manipulating a plane on a board while he himself was grinning at his mates. Finally the youngster inquired smartly, "Do you like to see me plane?"

"No," was the reply: "I am pained to see that you are not planing but merely making shavings."

Manual training that does not give thought, aim and zest in something to be used is merely making sawdust, bits of chips and shavings.

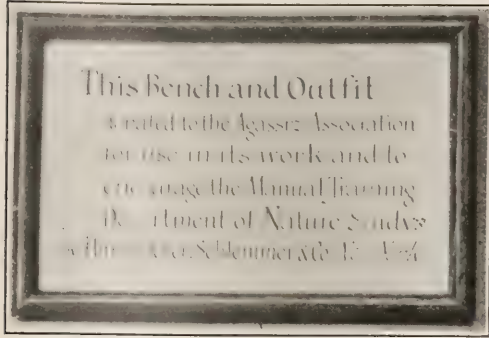
There is no better realm for the use of tools than in making apparatus for outdoor work or nature interests. The window box that you make grows the best plants; the bird box of your own invention and handicraft is occupied by the most lovable bird.

So a bench and set of tools, such as presented to the Agassiz Association by the Hammacher, Schlemmer Company, New York City, is as immediately within the scope of our work and as fitting in our laboratory as is a microscope or a camera.

In many respects it is fully as enjoyable, even for the girls. Every girl should know how to saw a board, plane

it, smooth it or drive a nail through it, and will enjoy such work. But, you contend, the girl isn't going to be a carpenter; tools belong to the boy. Now be consistent. You do not expect all boys who use tools to be carpenters, nor do you expect all girls

In the same sense and for the same reason that a girl wields paints and fashions clays should she saw off boards



who stencil patterns on dainty fabrics to fresco the ceiling of a church. The girl who letters and decorates a poster will not necessarily paint guideposts for street corners; nor is it necessary, if she learns to make mud cakes and fashions them for the oven in dainty pottery and bric-a-brac, that she shall make jugs and urns for a livelihood.

and bore holes through them. But for the boy, the use of tools needs no argument.

Let your nature interests have a basis in manual training. Let your motto be to do effectively as well as to say correctly.

The La Rue Holmes Nature Lovers League

By George Klinge, Summit, New Jersey

"THE GUIDE TO NATURE" is the official organ of the LaRue Holmes Nature League. It is important, for the general League interest, that the magazine be liberally supported, through the active cooperation of League members—George Klinge.

L. H. Nature League Motto: "Self-sacrifice; heroism for another."

Notes on the Economic Relations of Starlings.

Great concern is felt by many of us concerning the introduction of the English starling (*Sturnus vulgaris*), which occurred about sixteen years ago. The bird is of great value in the Old World, but the change into new conditions seems to be effecting as much harm as did the introduction of a Scotch thistle on the Pacific coast, and the naturalization of the chirping foreigner which have so

harmfully driven away our native songsters.

My attention was first attracted to the damage done through the birds feeding habit by noticing a nestling being supplied with what proved to be the staminate flowers of the hickory. Later on, in different localities, the same peculiarity has been noticed. Possibly these were not wholly eaten, but whatever the condition, such feeding, if at all extensive as I believe it to be, of course means

the more or less failure of nut-crops, or of a means of perpetuation of the tree.

Further, I have noticed these birds in grape-vines, and in various trees, wantonly tear off large pieces of leaves and do general damage to the fruit crops. It is this last-mentioned habit of the starling which has caused the U. S. Department of Agriculture to even issue a call for their extermination.

The nesting-place of the starling is as noisy as an East-side tenement. The loud chirping of the young, together with the rasping whistle of the parent make the neighborhood noisier than even an English sparrow settlement.

Baby starlings are unusually slow in leaving the nest, thus increasing possibilities of damage through harmful feeding, for young birds consume much more food than when mature, and the longer they remain in the nest the longer will they take the young birds' portion.

Holes under eaves, in poles, and in trees are usually the chosen homes, and that the starling so often nests in these

tree-holes, rightfully belonging to woodpeckers, is an especial reason for their banishment.

Mr. B. S. Bowdish, of the National Audubon Society, tells me of finding a couple of flickers with their heads broken open and their nest in possession of starlings. Though never finding flickers killed in this manner, I have found starlings nesting, even miles from town, in tree-holes which undoubtedly, since the starling is not a wood-borer, the flicker had used for its nest. The woodpecker, who destroys such quantities of ants and other harmful insects, is by far too valuable to be driven away by an intruder.

Undoubtedly starling will prove a great menace in various ways, but we need to learn more concerning its habits to more intelligently consider the case. Will any one else let us know of experiences with this bird?

ALFRED C. KINSEY.

"Auxiliary Chapter" of the L. H. Nature League.

LITERARY AND BIOGRAPHICAL

Birds Through the Year. By Albert Field Gilmore. New York, Cincinnati and Chicago: American Book Company.

A most interesting and wholesome nature reader for the upper grammar grades, full of live birds and real human beings, and permeated with the clear fresh air of the fields and brooks and woods.

The Landscape Beautiful. A Study of the Utility of the Natural Landscape, Its Relation to Human Life and Happiness, with the Application of these Principles in Landscape Gardening, and in Art in General. By Frank A. Waugh. Illustrated by Members of the Postal Photographic Club. New York: Orange Judd Company.

Every theme bends to the attempt to see the beauty that is in the world, and to make that beauty visible, worth while, and regnant in the lives of men and women. For we all need to know and follow beauty as we need to know and follow truth and duty.

Among School Gardens. By M. Louise Greene, M. Pd., Ph. D., 105 East 22d Street, New York: Charities Publication Committee.

This is a Russell Sage Foundation Publication, and a most sensible use for the money. Indeed, it is refreshing to note that some of Mr. Sage's money is devoted to the work of collecting data, and to the expense of publication.

Doctor Greene covers all sorts and conditions of garden work done for the educational work of the child. This means not only the school garden as it is ordinarily understood, but some of the big experimental gardens which almost approach farms in size, vacant lot gardens, back yard and front yard "patches"—in fact, everything down to a window-box.

Moreover, it is the first book to cover the whole country, instead of one city or district.

The book is very practical in its directions for choosing soils, kinds of seeds to plant, time for planting, etc.

Wilderness Pets at Camp Buckshaw. By Edward Breck. With Illustrations from Photographs from Life. Boston: Houghton Mifflin Company.

This is a grand, inspiring book. The author writes with frankness and an evident desire to stimulate an interest in nature. He is undoubtedly genuine. Just



FROM "WILDERNESS PETS AT CAMP BUCKSHAW."

read his candid and conscientious "Preface." It is so good we copy it entire:

"This is a plain tale of Camp Buckshaw and its wild pets. With a few unimportant exceptions it is also a true tale. The characters are nearly all real persons, though some liberty has been taken with their conversation; and the pets and their deeds are described as accurately as close observation and the use of note-book and camera can insure. Only the episodes of the cubs at Sunday School and of the disagreeable old lady are fictitious, while the sole picture taken from a photograph not made at or near Camp Buckshaw is that of the big moose. This was kindly loaned the author, as his own efforts to secure a good photograph of a bull-moose in hunting time have been in vain.

"If the story affords its readers, both young and old, but a small fraction of the delight conferred by Uncle Ned's pets upon those who were privileged to know them personally, the author will be well content. He wishes it to stand as an inspiration to study nature reverently and at first hand, and a protest against those baneful results of modern civilization—insensate luxury and false and artificial standards of life."

Practical Forestry. By Andrew S. Fuller. New York: Orange Judd Company.

This is a practical book for those who raise forest trees for pleasure or profit. It also assists in identification of the trees found in the forest.

General Biology. A Book of Outlines and Practical Studies for the General Student. By James G. Needham, Ph.D. Ithaca, New York: The Comstock Publishing Company.

This book offers a series of practical studies of biological phenomena for the guidance of the general student. It is not a formal text, and not at all a treatise, but only a guide intended to assist the student in acquiring for himself some real knowledge of living nature. The conditions of our living make ever increasing demands for knowledge of life phenomena, and some comprehension of biological principles is fast becoming a part of the common intelligence. This book is an excellent supply in these demands.

A High School Course in Physics. By Frederick R. Gorton, B. S., M. A., Ph. D. New York, Chicago: D. Appleton & Co.

This is an expansion of the everyday life of the pupils into the broader experience and observation of those whose lives have been devoted to the study. The author deduces his physical laws from common observation. This is a sensible method and is for physics the same as that of "The Guide to Nature" is for biology.

Curiosities of the Sky. By Garrett P. Serviss. New York: Harper & Brothers.

The author provides here an intimate and authoritative description of the curious bodies, constellations, stars, comets, meteors, lights, etc., etc., to be seen in the sky. The subject is called to every man's attention in a score of ways. He sees these things for himself, he reads about them in his newspaper, he knows that scientists are engaged with their explanation, and hears now and then of some wonderful new discovery—but he never knows quite what it is all about. This book will tell him.

Text-book of Elementary Zoology. For Secondary Educational Institutions. By Thomas Walton Galloway, Ph. D. Philadelphia: P. Blakiston's Son & Company.

A well arranged and useful book. Here is one of the most important statements: "It does not make any real difference whether the interest is in bees, or in ants, spiders, butterflies, snails, fishes, or birds; it does not matter whether it is in coloration, or in manner of locomotion, or in the mating instincts and care of young, or in the wonderful story of the development of the frog from the tadpole or the fly from the maggot. By all means become interested in something and let the word zoology always mean to you this one thing as the central thought."



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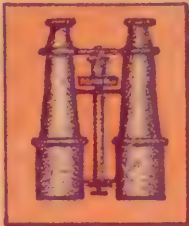
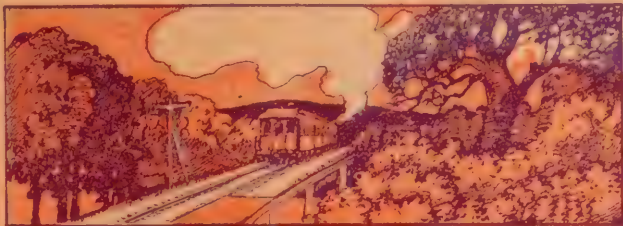
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EDWARD F. BIGELOW, Managing Editor.



A REVELRY OF CATTLEYA ORCHIDS.
See page 146.

PUBLISHED BY THE AGASSIZ ASSOCIATION.

ARCADIA: SOUND BEACH, CONNECTICUT

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ARTICLES AND PHOTOGRAPHS BY JULIE ADAMS POWELL.

Most of Stamford's old landmarks are passing away to give place to Twentieth Century improvements. The photograph of the homestead of the late John B. Knapp, on Richmond Hill, was taken when it was in the possession of the Knapp family. When Dr. Givens purchased the John B. Knapp estate, the old house was turned into a tenement house, and will in time be removed for more modern dwellings to be erected.

This cottage was built in 1750, and has been known for many years as "Rose Cottage."

During July, an important sale of real estate took place on Hubbard Avenue. About five acres of fine residential property was sold to Leonard K. Prince by John J. Linsky. This piece of land adjoins Mr. Prince's residence.

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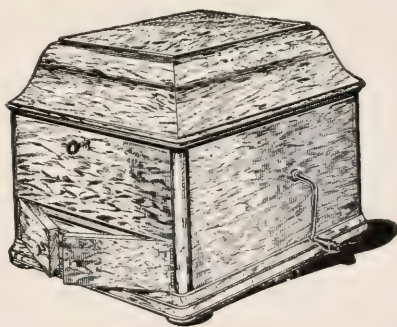
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To the old residents of the town of Stamford, the tearing down of Gothic Hall, the late home of Mr. John A. Brown, President of The Stamford Trust Co., brings forth many recollections of Stamford as it was in the middle of the Nineteenth Century.

When this house was built at that time it was one of the finest houses in the town, and situated as it was at the head of Atlantic Street, has always been an imposing structure. The site is ideal for the new library. With the Presbyterian Church on the right, and Bedford Street on the left, and the broad plaza in front, Stamford feels proud of the good taste shown by the trustees in selecting such an admirable situation.

The Essentials of Plant Rearing.

A man who hates plants, or is neglectful of them, or who has other interests beyond them, could no more be a successful plant-cultivator than he could turn back the tides of the ocean with his finger-tips.—Luther Burbank.

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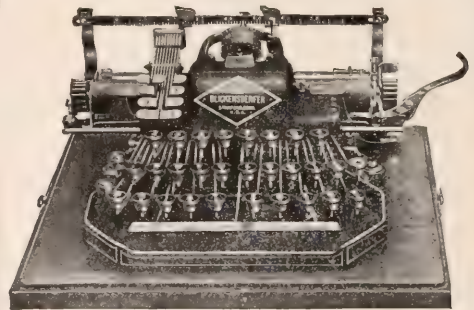
SAFETY—The Statutes of the State of Connecticut have for some years required the Trust Companies to keep a reserve equal to that required by the Federal Government of National Banks.

The Connecticut Legislature by an act passed in its session of 1907 required Trust Companies to invest deposits under the act regulating the investment of such funds by Savings Banks, and allowed five years for such conversion of investments as might be necessary.

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Stamford is proud to have the distinction of being one of the largest peach-growing localities in Connecticut. On Newfield Road at "Wind Ridge Farm," Robert L. Case has a peach orchard, which is, this month, in the height of the

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SORTING PEACHES IN THE FRUIT HOUSE AT "WIND RIDGE FARM."

peach season, and finer fruit will be difficult to find anywhere hereabouts.

Sixty acres of this farm are devoted to this product, and this year Mr. Case expects to harvest six thousand sixteen-quart baskets of this luscious fruit. Twenty-five pickers are employed in the orchard, and twelve sorters and helpers in the fruit house, where all of the peaches are carried, to be sorted by these competent and reliable hands.

Hundreds of people call at the farm for "Case's famous peaches." They come from adjacent towns in wagons, automobiles and on bicycles, and every day

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from one hundred to one hundred and fifty baskets are disposed of in this way. It is a wonderful sight to see rows upon rows of the rosy cheeked fruit on the floor of the barn.

Mr. Case lives in the Brown Homestead, where Mr. John A. Brown, of the Stamford Trust Co. was born. The old farmhouse sits back from the road and is surrounded by century-old elms. The view of Long Island Sound from its piazzas is superb. Opposite the house is a winding lane, leading to a large barn, of ancient date, which has been converted into a fruit house. It is arranged so that the air circulates through the

building. A watchman sleeps here, and in case of trouble in the night, from prowlers, a large bell, in the tower overhead, can be rung, and a telephone is also at hand.

During the busiest part of the season, Mr. Case and his daughters remain in the barn every night until midnight, and oftentimes until two o'clock in the morning, to see that the three big wagons are properly loaded and started off to reach the markets of Portchester in time for the early shoppers. Two of these wagons carry one hundred baskets each, while another one, which is a double decker, holds one hundred and fifty baskets.



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THE HOME OF MR. WM. H. HENNEBERGER IN REVONAH MANOR.

A Head of Lettuce Almost a Pound.

There is a woman gardener in the city of Stamford who delights in experimenting with nature, in the growing of vegetable and flower seeds. Last October, among other vegetables planted in the open garden was California Cream Head lettuce. Early this spring all of the vegetables came up long before the spring planting was finished. Tender green onions, leeks, parsley, cress, mustard,

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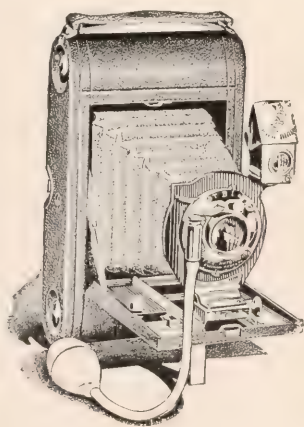
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CALIFORNIA CREAM BUTTER HEAD LETTUCE.

Grown from October sown seed. Was not transplanted. June 17th weighed fifteen ounces.

Photographed by Julie Adams Powell.

were all enjoyed by the woman garden-
er's family, and the lettuce was particu-
larly fine. Some of the heads grew to a
large size. They were not transplanted,
and one head, cut on June 17, weighed
15 ounces.



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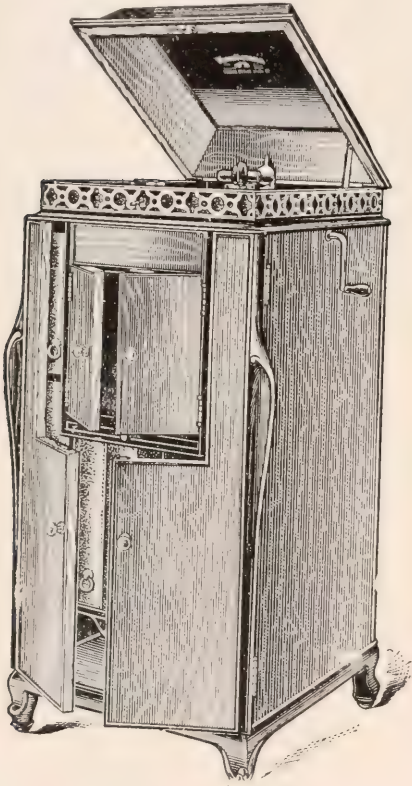
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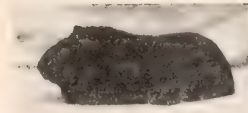
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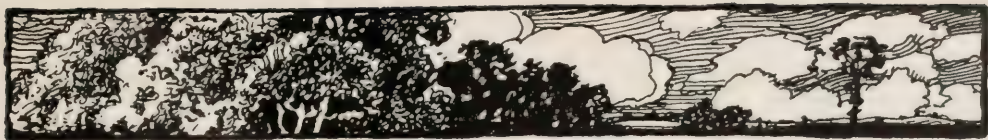
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"Upon properly appointed and becoming dwellings, depends more than anything else the improvement of mankind."—*Disraeli.*



A NATURE COLUMBUS.

I stopped there in my field and looked up. And it was as if I had never looked up before. I discovered another world. It had been there before, for long and long but I had never seen nor felt it. All discoveries are made in that way: a man finds the new thing not in nature, but in himself.—*David Grayson in "Adventures in Contentment."*

Arc adia

DO NOT OVERLOOK THE PRESENT PARADISE.

But religion has properly not to do with the future but with the now. It is largely a matter of sentiment and habit, our concern for the future. I *have* no future. I have only today. And ever and forever it will be today, though like as not we shall still be dreaming of the future—in paradise still dreaming of a future paradise.—*Stanton Davis Kirkham in "The Ministry of Beauty."*





THE NATURAL BRIDGE, VIRGINIA.

This photograph and others in the following article by Edward F. Bigelow.

Among commands relating to duties of the heart and mind are the following: To believe that the world has a Creator who created it from nothing, and that there is none other like Him, and to devote intelligent thought to the wonders of his creation, so that they may be to us a sign concerning Him.—*Rabbi Bachzi. "Guide to the Heart." 11th to 12th Century.* (Contributed by an appreciative AA member.)



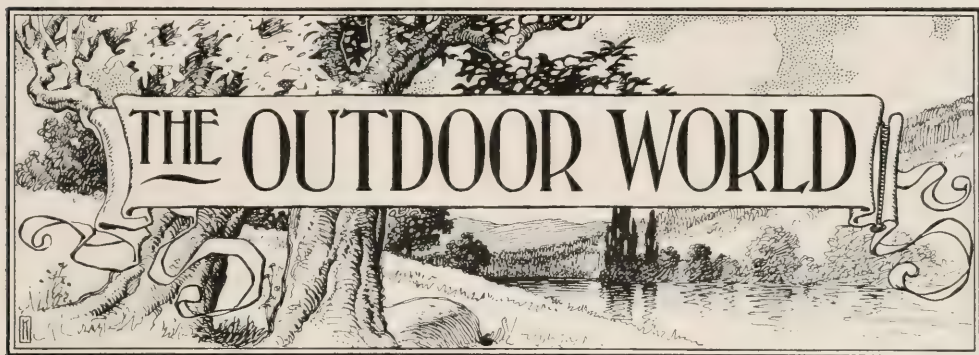
THE GUIDE TO NATURE

EDUCATION AND RECREATION

VOL III

AUGUST 1910

No. 4



The Natural Bridge of Virginia

By R. HADEN PENN, Buchanan, Virginia



THE Natural Bridge of Virginia is one of the greatest natural curiosities of the western world. It is an immense bridge of limestone connecting two small mountains. Beneath the

great arch runs a considerable stream called Cedar Creek. The height of the bridge is two hundred and fifteen feet, the width one hundred feet, and it spans a gorge ninety feet in breadth. It is fifty-five feet higher than Niagara Falls. The walls of the bridge are as if they had been cut with a sculptor's chisel and there is no sign of displacement in the work which nature has been doing for centuries.

This bridge was a wonder to the red men who inhabited this region in great

numbers before the coming of the hardy and home hunting pioneer who began to push his way in this territory about the year of 1730.

The Scotch Irish pioneer who first invaded this section attached little value to the bridge as property, as he was preeminently a home seeker, and it was not until Thomas Jefferson visited this region that the idea occurred to any one to purchase the bridge.

Mr. Jefferson obtained a grant from George the Third, King of England, for the sum of twenty shillings. This grant comprised one hundred and fifty-seven acres. In 1775 Mr. Jefferson built near the bridge a large log cabin, containing two rooms, and placed in one end of this cabin a negro man and his wife—the man singularly enough

named Patrick Henry. The instructions to the negro were to keep one of the rooms for visitors to the bridge, and to charge nothing for viewing the great natural curiosity. Since then it has been held by eleven owners. The region is one of the most beautiful places in the Blue Ridge mountains. In 1881 Colonel H. C. Parsons organ-

ors from all sections of the United States visit it, and many foreigners also sojourn there to view one of the greatest natural curiosities in the world. General George Washington paid several visits to the locality and climbed up the immense arch and carved his name highest under the bridge. For many years no other per-



SEEN FROM A DISTANCE, THE BRIDGE IS LIKE "A BIG HOLE IN A WALL OF STONE."

Telephotograph from the top of a distant hill across a valley.

ized a company which purchased the bridge and a large area of surrounding territory, and to this company and Colonel Parsons is due the credit of beautifying the place and making improvements worthy of this great work of nature. After the completion of the Shenandoah Valley and the Chesapeake and Ohio railroads, both of which pass within two miles of the bridge, the public has had every facility of modern travel to aid in reaching the place, and annually thousands of visit-

son attempted the feat; but in 1818 James H. Piper, a student of Washington College, Lexington, Virginia, climbed far above George Washington's position and made his egress on a ledge which he succeeded in reaching by a leap that saved his life. His distance up the sides of the gorge was one hundred and seventy feet. Several persons have committed suicide by jumping from the bridge. To go to the edge and look over is frightful. There seems to be an influence that



A SECTION IN THE PICTURESQUE WALK DOWN TO THE RAVINE.

urges one to leap into the chasm, and one shudders at the experience. In 1834 Captain Lackland, then owner of

the property, made an iron carriage in which visitors were let down over the bridge by a windlass. For this he



THE CASCADES, A SHORT WALK NORTH OF THE BRIDGE.

This stream flows down the ravine, under the bridge.

charged each passenger a dollar. Many accidents have occurred there to visitors who were too daring in their flirting with danger.

The earliest historical mention of the bridge was in 1759 by Burnaby who speaks of the curiosity as an arch joining two high mountains and a river running beneath it. A bloody Indian battle took place near the bridge in 1770. Lightning struck it in 1779 and hurled down immense stones from the

tion, Secretary of State William M. Evarts of New York, visited the bridge and a delegation of the oldest people of the vicinity was there to meet the distinguished man. One old gentleman told him that George Washington threw a Mexican silver dollar over the arch from the creek below and that the dollar was recovered. The Secretary replied that he did not believe any living man could do this feat now nor did he believe Sampson could have



THE ARCH OF STONE IS REALLY A BRIDGE, AND IS SO USED BY MANY TEAMS.

This team is on the bridge.

crag. George Washington surveyed the tract while surveyor to Lord Fairfax, and his name may still be seen on the bridge where he carved it. Marshall, Chief Justice of the United States Supreme Court, visited the bridge and said it was God's greatest miracle in stone. Presidents Monroe, Jackson and Van Buren each made trips there. Henry Clay, Sam Houston (who was born near the bridge) and Thomas Benton were among celebrated visitors. During the Hayes Administra-

done it in his day. The old gentleman contended that it was a well authenticated story. "Well," says Mr. Evarts, "I can explain it only on one theory and that is that a silver dollar went a great deal further in George Washington's day than it does now," and the subject was dropped.

Nature is always interesting, but at times her handmade wonders awe us by her beauty and sublimity, and she was in this mood when she made the Natural Bridge of Virginia.



Evening Sky Map for August.

BY PROF. ALFRED MITCHELL, OF COLUMBIA UNIVERSITY.

The average person was disappointed in the appearance of Halley's comet in that it did not live up to the reputation made for it by the daily press. In reading of the tremendous velocity of forty miles per second that it had at one time with respect to the earth, one almost naturally looked to see it move in the heavens like a gigantic sky-rocket, changing its position tremendously in a few hours—and yet the earth is moving continuously at nearly half the above velocity. In fact, most comet gazers expected to see an object nearly as bright as the moon with a long brilliant tail resembling a gigantic meteorite or shooting star. Though comets fall far below such expectations, they have important connections with meteors and shooting stars; and there is no month in the year quite as favorable as August for a study of these interesting objects. The warm nights of summer are more comfortable for keeping a watch of the heavens, and one can take himself out into the fields and throw himself upon the grass, or if not in the country, he can take a pillow with him to the upstairs verandah or to the roof, and stretched at full length, can gaze in comfort at the skies. Then, in the second place, there are more shooting stars in the early part of August each year than there are, except at rare intervals, at any other time.

Who of us is not familiar with the darting rush of light through the sky which we call a shooting star, or in its more splendid forms a meteor or fireball. The meteor is generally accompanied by a luminous train of light, which marks out the path of the body,

and which at times persists long after the shooting star has disappeared. Those paths are more or less curved, seldom exactly straight, and here and there along the path we can see where the direction has suddenly changed. At times this change in direction is accompanied by a violent explosion which at times may be heard for miles.

When these bodies reach the earth, they are called meteorites or aerolites, and whether found at the time or hundreds of years later, they are highly prized in our museums. When such an object has been observed to fall by many people it is interesting to note how very unsatisfactory nearly all accounts are, the appearance and the noise being terribly exaggerated.

One of the finest collections of meteorites in the world is at the American Museum of Natural History in New York City. In addition to the Ward-Coonley collection having specimens of over ninety per cent. of all known meteorites, they have there the largest known meteorite of thirty-seven and a half tons, brought by Peary from Greenland; the interesting Williamette meteorite, found in Oregon in 1902, the third largest in the world, and many others. Though these large objects were not seen to fall the scientific man has certain sure tests which make it certain that these bodies came from the skies.

There seems to be no difference except size between these meteorites and the tiny shooting stars which we glimpse from the corner of our eye. It is rather easy to estimate the number of shooting stars that are seen daily. If one, on a clear moonless evening, should get away from the city lights, it would be only a few minutes before he would see a shooting star. If

a careful watch were kept, one could count four to eight such bodies hourly. By estimating the area that one could see over the earth, he would be surprised that no less than fifteen to twenty millions of shooting stars reach the earth every twenty-four hours.

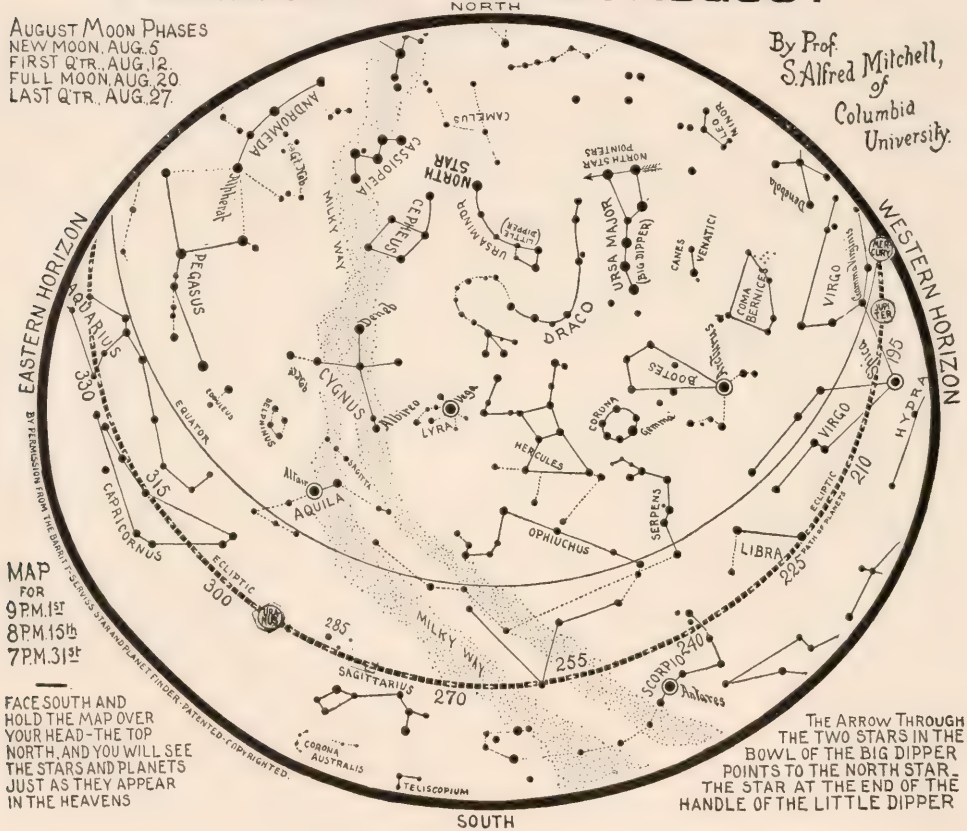
At times more than the average number of shooting stars may be seen,

showers of '33 and '66 was that millions of small bodies are grouped together, moving in an orbit like a planet or a comet about the sun as the center of motion. Each year in November the earth in its journey about the sun goes through the track of the meteors, but only once in thirty-three years are the meteors encountered in sufficient

EVENING SKY MAP FOR AUGUST

AUGUST MOON PHASES
NEW MOON, AUG. 5
FIRST QTR., AUG. 12
FULL MOON, AUG. 20
LAST QTR., AUG. 27

By Prof.
S. Alfred Mitchell,
of
Columbia
University.



and the earth is then said to experience a meteoric shower. The most noted one was that of November, 1833, with a recurrence of the same shower in 1866.

Though not so numerous as in these two years, there is each year in August quite a number of meteors, and during the first half of the month, there can readily be counted between ten and twenty every hour. The reason for the

numbers to give the fine display of a shower. In other words, it takes them thirty-three years to revolve about the sun.

The cause of the August shower is similar to that of the November shower, but with an important difference. The meteors causing the August shower are not so much bunched as those of the November shower, and are strewn out all along their path

about the sun. The result is that each year when the earth's orbit and meteor's cross each other, which happens about August 10, there is a display of shooting stars.

Though they are called shooting stars, every one knows that these bodies are not the stars that are falling. The fixed stars are at enormous distances away from us, and most of them are millions of times bigger than our earth. If millions of meteors reach the earth every twenty-four hours, the earth must be slowly getting heavier. The increased weight would show its effect on the earth by making it rotate slower on its axis, and the day as a result becoming longer. Since the first recorded astronomical observation the earth has not changed the length of its day by as much as the one hundredth part of a single second, and hence, we must conclude that the average shooting star is very small, most of them not weighing more than a single grain, with an occasional one as big as an apple or even paving brick.

The earth's atmosphere is so dense that a great amount of friction is caused by the particle moving, and in its quick flight the energy of motion is transferred to heat. The result is that the small particle of matter becomes so hot that it glows and becomes luminous. The meteor is generally consumed during its short flight. Once in a while the meteor is so large that it is not all burnt up, and a portion of it, fused on the surface, and scarred by its flight, reaches the earth as a meteorite.

Photographs of meteors are often obtained by the astronomer, generally by accident, when one crosses the field of the camera, while it is being exposed for some other purpose. Very often such photographs show a sudden brightening, then a dimming of the light, and a second brightening, as is seen on a splendid photograph taken by Professor Barnard showing a nebula in the constellation of Cygnus and a meteor trail.

Evidently the meteors in passing through the earth's atmosphere must move in paths which are parallel to

each other. However, as these parallel lines are projected back to the background of the stars, their apparent positions are changed. As perspective makes the two tracks of a railroad appear to meet in a point, so all the paths in a meteoric shower appear to radiate from a point in the sky. This point is called the radiant, and the shower takes its name from the constellation in which the radiant is found. The August shower has its radiant in the constellation of Leyra.

Amateurs may do very interesting work by taking with them their sky map and noting on them the paths of the meteors. Locate them from their position among the bright stars, note the time, the brightness, the color; and producing the paths backward they should come together in a small area not far from the bright star Vega. At the same time a splendid opportunity will be further afforded of becoming better acquainted with the heavens, and learning the names of the bright stars and constellations.

THE PLANETS FOR AUGUST.

Mercury is an evening star, but is uninteresting during August. Venus as a morning star is drawing closer to the sun, and rises but a short time before dawn. Mars has been in the even-sky for a year, but sets less than an hour after the sun, and is now very faint.

To the amateur with a telescope, Jupiter is still very interesting. Its surface shows a remarkable amount of detail, and it is well worth watching. It is at quadrature, or 90° from the sun on July 29, and at the middle of the month was on the meridian at 3 P. M. Everybody recognizes it as the bright evening star in the southwest.

Saturn is becoming brighter each day, its rings show well in a small telescope. It is a morning star, and is on the meridian at the fifteenth of the month at 4.45 A. M.

Uranus can be located from the position as shown on the sky map. With a good telescope one can recognize it by its disk, differing thereby from a star. It is on the meridian at the middle of the month about 10 P. M.

FLORAL MUSIC AND PAINTING

Orchids are the floral ecstasies of Nature. In their production she was of Wagnerian spirit, in dream and fulfillment; and yet, like Opie, she "mixed brains in her colorings," for in form and color there is not only a delirium of beauty but a motive.



The North American Home of Certain South American Orchids.

BY EDWARD F. BIGELOW, ARCADIA: SOUND BEACH, CONNECTICUT.

North American orchids grow plentifully in all parts of the United States.

"There are to-day, according to conservative reports, from twenty-seven to thirty genera and from one hundred and fifty to one hun-

as far north as the Arctic Circle. Four *Cypripediums* grow between latitudes 54° and 64°, and from fifteen to eighteen species of the orchid family are natives of Alaska."

While all these varieties are beautiful or of special botanical interest, none are cultivated for commercial purposes to such an extent as are those brought from South America at great cost in money,



PART OF THE GREENHOUSES WHERE THE ORCHIDS ARE CULTIVATED.

A unique establishment—nothing else but orchids are grown here; orchids, orchids everywhere—on benches, under the benches, suspended from the glass roofs and in every conceivable position wherever space can be found to accommodate them.

dred and sixty species of native orchids found in North America, north of Mexico. . . . The range of the North American orchids extends wherever sunshine and moisture prevail, nearly

labor and even in risk of life itself.

North American orchids are at home out of doors almost everywhere, but South American orchids must be tenderly

cared for in the greenhouse. Probably the conservatories that deal most extensively in these beautiful visitors are those of Lager & Hurrell at Summit, New Jersey. From these large houses, which are devoted exclusively to orchids, the rarest and most beautiful of these flowers are sent to all parts of the United States, so that Summit, New Jersey, may rightly be called "The North American Home of Certain South American Orchids."

It is true that not all exotic orchids come from South America. Many beautiful forms are found in Mexico, in Central America, the East Indies and adjacent islands, but the best are from South America.

In order to tell our readers of the wonderful display to be seen at these greenhouses, I recently spent a day there with my camera. Fortunately a great variety were in bloom, as is shown by the photographs which accompany this article. It was a day of revelry among rare and beautiful flowers—some plants being valued at five thousand dollars each. This high rating is due to the rarity of the particular kind—a white *Cattleya*. In actual beauty or in botanical interest these are excelled by some that are not valued at more than a few dollars apiece.

The contents of the greenhouses and



MEN AT WORK UNPACKING A SHIPMENT OF ORCHIDS JUST ARRIVED FROM SOUTH AMERICA.

the methods of working are so unlike those of other greenhouses that after photographing specimen after specimen of the strange and beautiful flowers they



MEN AT WORK ON A SHIPMENT OF CATTLEYAS JUST UNPACKED.
The plants are now carried into and placed in the greenhouses.



INTERIOR OF A HOUSE WITH HUNDREDS OF ORCHID PLANTS IN FULL BLOOM.
Under the benches note the quantities of fresh arrivals from the tropical forests recuperating from the long journey.

give one the impression that he is in another country or perhaps on another planet. Instead of the usual planting of seeds or cuttings, here are the unpacking of huge shipping cases that have come directly from South America, the arranging of their contents in boxes and traps, and the placing of these on long tables or hanging them from the roof. Nearly all the processes and arrangements are different from those of the ordinary greenhouse; even the light is different, as all the glass is painted.

These statements, however, should not convey the impression that the care of orchids is difficult. On the contrary the method seems simpler and the care less anxious than with the generality of ordinary house plants. The manager stated that while the sale is largest in cut flowers for the city florists, yet there is considerable demand for entire plants in small, single boxes or in small lots for the amateur who wishes to raise his own orchids and to watch the unfolding of their marvelous flowers.

Our readers will recall that Mr. Lager had a brief article on orchids in *THE GUIDE TO NATURE* for April, 1910. The following quotation from that article is worth repeating:

"An erroneous impression is that these plants grow in swamps. This is not the case for no plants are more particular than the orchids in regard to pure air. Most of the species sought after are epiphytes or air plants; that is, the plants are usually found growing on trees where they attach themselves to the trunks or limbs in light and airy positions, rarely in dense shade. They do not take any nourishment from the tree, which serves merely as a means or object to which to cling, the roots spreading and clinging over the surface of the bark and absorbing their food from the atmosphere.

"The orchids are found chiefly along the edges of the forests or along the banks of streams and rivers, in fact anywhere where openings in the forest occur.

"The *Cattleyas* rarely occur below two thousand feet above sea level and seldom go

beyond forty-five hundred elevation. From the last mentioned elevation up to eight thousand feet and nine thousand feet a great number of species of orchids are found, some of which are very beautiful, such as *Miltonias* and *Odontoglossums* and many more. All of these love a cool and moist temperature. Still higher up in the colder climate many more exquisitely beautiful kinds are found, such as the *Masdevallias*. These, however, although very beautiful, are rarely brought to this country owing to our hot summers. They grow in a continuous low temperature and it is almost impossible to imitate conditions here to make them thrive.

"The collecting of the orchids proper is more or less the same in all the countries where they grow. Parties go out into the forests in twos or threes, or sometimes more, carrying food for a week, also shotguns and ammunition, string bags and the indispensable 'machete.' The latter is man's constant companion in the tropical forests. Without it little could be accomplished. A camp is now selected and a ranch built of a few poles covered with palm leaves. During the day the men go about looking for the particular kind of orchid wanted, and when any are discovered the trees are as a rule cut down, the plants are stripped from the trunks or branches and put carefully in the string bag, the latter being first lined with green palm leaves so as to keep the plants fresh and to protect them from the sun.

"The plants are now carried on men's backs to the village where a house of some kind is secured to store the plants in such a way that they are kept dry, shady and airy. After a sufficient quantity is accumulated the plants are packed in boxes made for the purpose from logs sawed into boards by hand. The boxes are well ventilated, and the plants packed in dry shavings to keep them from rotting in transit. They are now loaded on mules or oxen and transported to the nearest river, and, if the journey takes several days or weeks, care must always be taken to see that the boxes are under cover when unloading—in the middle of the day to protect them from the burning sun, and at night from the rain. For this purpose tents are carried. Once at the river the boxes are loaded on specially built rafts or in large canoes and floated down the river, sometimes with great danger, until a place is reached from which transportation by steamer can be obtained down to the coast, where they are again embarked for Europe or the United States, where if the plants arrive in good condition they are made under proper culture to produce their beautiful flowers—sometimes in less than one year from the time the plants were taken from the trees in their native forests."

In addition to this we were permitted to read an extended letter from Mr. Lager to a friend, telling anecdotes and experiences in collecting in South Amer-



ORCHIDS IN BOXES ON A RAFT ON A SOUTH AMERICAN RIVER.

ica. The following quotations and summary from that letter will be of interest.

Mr. Lager's accounts of traveling in

sistance were many and varied, some being of an exciting and almost tragic nature.



CATTLEYA GIGAS ALBA.

This is a natural variety of *C. Gigas* with pure white flowers of great beauty. This plant is remarkable for the fact that it is the rarest orchid ever found. The plant flowered for the first time this year and was exhibited at the great orchid show in Boston last May, where a gold medal was awarded it.

South America are remarkably interesting—not only as a collector of orchids, but as a traveller. His difficulties in travelling and in obtaining food and as-

Here is a sample of the ecstasy that he experienced in some of the successful efforts of the expedition:

"With orchids and orchid collecting in the



CATTLEYA MOSSIAE.

A native of the Venezuelan Andes. A very beautiful orchid with lavender flowers, the lips of which are frequently gaudily colored with purple, yellow, rose and white.



CATTLEYA GIGAS OF COLOMBIA.

The flowers, of lavender color with lips of intense purple, are the largest and finest of all the Cattleyas.



PHALAENOPSIS AMABILIS.

Sometimes called the "Queen of Orchids." The large flowers are pure white in color on long drooping racemes. A native of the Philippine Islands.

tropics so many things are intertwined that in a short letter it would be folly for me even to pretend to treat the subject as it deserves. To the first question, regarding my impressions and experience, I would say in a few words that my impressions of these plants were of such a nature as to be comparable with those of a child for whom a new world is suddenly thrown wide open, with the difference that I had experienced a strong desire to see with my own eyes nature's jewelry store, so to speak, and so in a measure was prepared to see something of which I had previously heard so many more or less truthful stories; yet my impressions were those just mentioned.

"Of course the field is very large and, owing to many difficulties, only a small part, comparatively speaking, can be seen at a time in a given locality. Yet in some regions certain species of orchids occur in great abundance both in quality and in number of species. The number of the latter I would not dare to guess—not even approximately. The most wonderful region for orchids in Colombia, and I think I am safe in saying in South America, if not in the world, is the northwestern part of the department of Antioquia. Here the Central Cordillera sends out a number of spurs and high ridges in all directions, forming tremendous canyons, valleys and chasms where all sorts of climatic conditions prevail, from the purely tropical to the cold, dreary 'Paramo.' In this region I found more species of orchids than it has been my fortune to see in any other region that I visited.

* * * *

"Now a few words as to how these plants grow and occur. The Anguloas grow mostly on the ground or on the lower parts of the trunks of trees. The same may be said of *Lycaste Costata*. This latter plant attains very large dimensions. I have seen plants more than two feet across, and so large and heavy that I thought that I could not afford to give them room in an ordinary box. A beautiful sight is to see this plant in full bloom. Imagine a large, crooked, venerable tree covered with moss and a multitude of epiphytes with here and there a *Lycaste Costata* in full bloom resembling a large basket of eggs. It looks odd, yet it is beautiful. I now particularly remember this plant as I gathered a very large specimen in full bloom, and carried it to my ranch, where, placed on the top of a box, it for two weeks served as an adornment to the place. The Anguloas are very beautiful as they are seen growing here. The natives call this plant 'La Cuna de Venus' (The Cradle of Venus), and a very appropriate name it is. The *Odontoglossums* as seen growing on the trees are hard to describe with their majestic, arching spikes. *Odontoglossum luteo-purpureum* (the var. *Sceptrum occurshere*) and *O. Coronarium* generally select the high ridges; in fact, I usually found them on very narrow ridges where a breeze is always blowing. On these ridges they are scattered here and there on the trees, in some places accompanied by *Oncidium Orosom*. The trees in these particular places are frequently covered with Bromeliads in great variety. Epidendrums occur everywhere, some growing on stones and

rocks, others on the trees, others on the ground, even along the banks of the trails, such as the pretty *E. fimbriatum*, which grows mostly in sunny, exposed places, forming pretty white or pink patches along the roads. *Miltonia Vexillaria* is most beautiful to see in flower on the trees. This plant, unlike most Colombian orchids, occurs usually on the smaller branches and less frequently on the large trunks. In some localities it occurs in abundance and at elevations ranging from two thousand to six thousand feet above sea level. At the lowest elevation it is found sparingly and generally is there small and puny, while at from four thousand to five thousand feet it is found at its best. It occurs even higher but not in luxuriance, although, strange to say, I have seen the plants cultivated in some of the villages and towns at much higher altitudes and consequently in colder places where they grew and flowered admirably well.

* * * *

"Surroundings, elevation, climate and scenery, or in short, the associations among which the plants grew, were most likely what caused me to contemplate God's glorious creations in the manner described. As I previously mentioned, where *Cattleya Gigas* flourishes there is a sense of a fresh, invigorating, breezy at-



MILTONIA VEXILLARIA.

"Pensamiento" or pansy of South America—so called by the natives on account of its resemblance to pansies. The flowers are bright rosy pink.



VANDA COERULEA.

The blue orchid. A native of the East Indies. The color of the flowers is of an exquisite bluish color on long, many flowered, graceful sprays, strikingly beautiful.

mosphere, and the trees on which it grows frequently stand solitary and grand, while where its sister, *C. Chrysotoxa*, grows, the atmosphere is warmer, the trees or forests somewhat denser, especially when it is found in gorges or along a stream or river, and the plants are more protected from the sun.

* *

"I now plodded along the beautiful Cauca Valley southward looking for *Cattleya Chocoensis*, which, on the twenty-fifth of August, I found in full bloom. The sight was one of the most beautiful a mortal could behold—

literally covered trunks and branches, being fastened and suspended in every imaginable position, and so easy of access, that I sat in the saddle and picked them by the handful. The flowers were very fine, large and open."

Here are recounted some of the difficulties of packing and shipping:

"The greatest difficulty in this region is to obtain cases for packing, and to move the cargo when once packed. After the plants have been brought out from the forest (usually in bags on men's backs) to some locality



ODONTOGLOSSUM PESCATOREI.

Native of the cool Colombian Andes. The flowers are white suffused with rose, in great numbers on long, arching, graceful sprays.

patches and stretches of forest occur here on level land, a great deal of which is swampy. In the valley proper my trail led through a moderately dense forest where *Cattleya Chocoensis* was at home in the true sense of the word. The trees were mostly of a short and stunted appearance and covered with moss from the roots to the branches. Here these plants grew by the thousands; in fact, it is the only *Cattleya* that I have ever seen growing in such quantity in a given place. They

from which mules can be used to transport them, there is no possibility of obtaining lumber for packing cases, and I had to resort to all sorts of expedients with more or less success. Finally I bought coffee bags, ripped them open, and laid two bags crosswise in a box or form made without bottom for the occasion. In this plants were tightly packed with dry plantain leaves and when it was full the ends of the bags were sewed together, after which the frame was removed, leaving



ODONTOGLOSSUM CRISPUM FROM THE COLOMBIAN ANDES.

The flowers vary from pure white to dark rose sometimes marked with crimson spots.

a neat square package. These packages being flexible adjusted themselves to the mules' backs and could be carried over trails where boxes could not pass. In this manner I had to move the greater part of the *Cattleya Trianae* that I collected. Closely connected with this is an incident which is still vivid in my memory, one of many, but one which will again show how many things are mingled with orchid collecting, and not only how money

is expended but how often life itself is at stake in a thousand ways. Yet, strange to say, one gradually becomes accustomed to hardships and dangers until at least one very seldom thinks of accidents which may be serious, or realizes the full import of a possible misadventure until it is actually over. Many a time since, and even at the present writing, when thinking of these things, a sense of horror steals over me. On this particular



MILTONIA BLEUANA.

A beautiful hybrid—a cross between *Miltonia Vexillaria* and *M. Roezlii*. The flowers, pure white with faint lavender in the center, are larger and finer than those of either of the parents.



MORMODES SPECIES.

A curiously shaped orchid from Brazil. The flowers are greenish with dark spots, and its shape reminds one of an insect.

occasion I had a magnificent lot of plants—enough for some four hundred cases, but being far up the river where large champanes (canoes) rarely ventured, I fully realized my predicament. I packed my plants in bags as previously described, packing during the nights fifty packages or twenty-five cargoes, and in the mornings going with the cargoes to the nearest accessible place on the river, a journey of only six hours. In a week's time I had the entire lot on the river bank. Here I pitched tents and canvas, unpacked the plants, placed them in an erect position, and thus prepared for any long delay that might occur. I made journeys down the river, trying to induce parties to ascend with two large champanes, but to no purpose, as I was told that the river was too swift and the journey too dangerous. My real work and trouble were only beginning, but as I realized that I had much to lose, I was spurred on to all kinds of propositions, and finally I reluctantly agreed to pay the full value of the champanes should we meet with mishap, and besides this I offered to pay double the customary freight. Having this matter arranged I returned to my tents and anxiously awaited the craft. One entire week passed without any sign of the

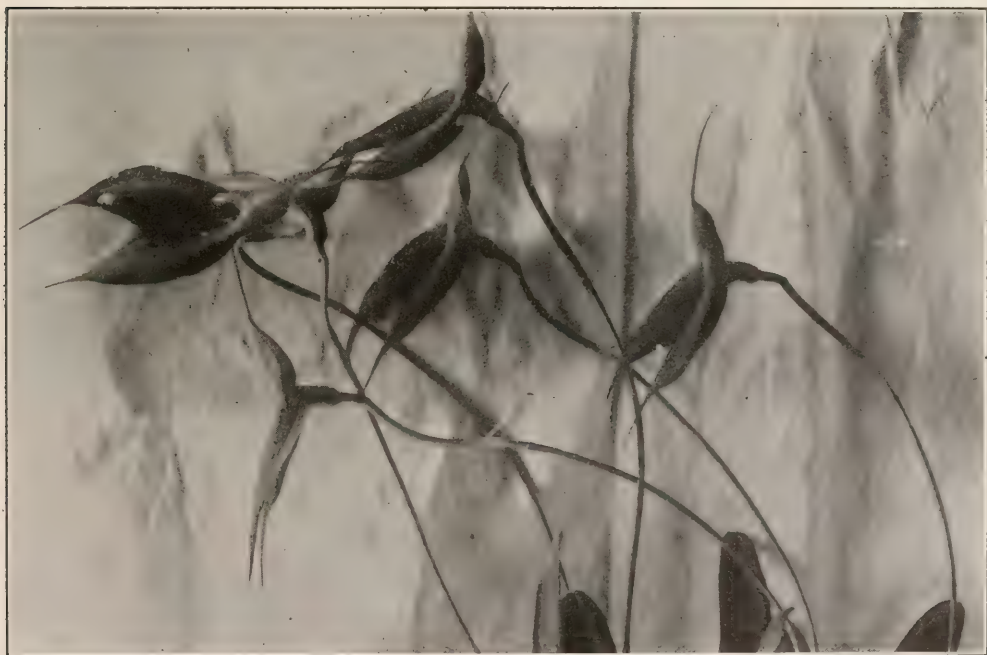
champanes. I then jumped into the saddle and rode along the river, approaching it whenever possible in places from which I had a good view, and to my intense delight I sighted them in a sharp turn of the river, tying up for the night. I was so overjoyed by the near prospect of being able to move my cargo and of being released from my temporary imprisonment that I did not lie down to sleep before nearly midnight. Before retiring I mechanically went down to the river bank, only a few yards away, and noticed the water was unusually high, scarcely a foot from the top of the bank. Not taking the matter very seriously, I lay down and fell asleep. In the tent with me I had three men and a young, bright boy. Suddenly I was awakened by a shriek from the boy, 'Patron, el agua esta en el Toldo!' (Master, the water is in the tent). In an instant we were on our feet. Our position was horrible—the water had overflowed the banks, and was now sweeping among the trees, bamboos and bushes at a terrific pace, making a deafening noise impossible for me even to try to describe. In an instant our camp fire was gone, leaving us in complete darkness. Next the tent and our belongings went. In that horrible moment it was necessary to think and act quickly. As

I had an immense pile of dry plantain leaves some of which I had used for packing the plants, I made my way through the darkness and set it on fire. We could then see our position, which was such that the only way in which we could save our lives seemed to be to climb into the trees. The tent where I had slept was pitched on an angle formed by a small stream on my right and the Magdalena. The water in the latter rose so quickly that it forced its way up the stream and swept over the banks behind us, forming a gigantic river in our rear, leaving us isolated on a small, slightly elevated island. Fortunately I had all the tents on this knoll where I also kept the plants. However, it would be a question of only a few minutes before all should be swept away, and each of us ran for a tree while the fire still lighted our way and before the water could cut off all possible means of escape. At this moment kind Providence seemed to intercede in our behalf, for the freshet having spent its force, the water began slowly to recede. Two days later the champanes arrived and I started at once to load the plants, piling them up in tiers until each boat was full and I was ready for the

perilous descent. We passed rocks and stones and huge tree trunks often with a safety margin of only a few inches, but notwithstanding such dangers we arrived in good order at a place on the river from which I could go down stream with more confidence.

* * * *

I cannot refrain from referring to the beauty of the vegetation here exclusive of orchids. Every step upward presented something new, beautiful and interesting. From the ground up to the high trees was a study in plant life, the ground being covered with all kinds of curious mosses, selaginellas and ferns, with shrubs in full bloom or with strange fruits, the trunks of the trees being covered with orchids and climbers of many species. In one place I came across a cave or ravine—the most beautiful it has been my fortune to behold. A tiny stream of water rolled gently over the rocky walls, the latter being covered or studded with beautiful, filmy ferns. The water on the delicate fronds made the latter appear like a mass of gold. The floor or ground was covered with selaginellas and ferns of many hues with here and there



MASDEVALLIA VEITCHIANA.

From the high and cool South American Andes. Like most Masdevallias, it is rather difficult to grow here during the hot summer months. The flowers are of a resplendent color with one solitary flower to each scape.



CYPRIPEDIUM BELLATULUM.

A strikingly handsome species of "lady's slipper" from the East. The flowers are white with numerous dark spots.

a tree-fern growing in the fissures of the rock, its large fronds overhanging the whole. There were also large tree-ferns with straight stems twenty and twenty-five feet high with fronds sometimes touching the ground, and forming huge and graceful, umbrella-like arbors.

* * * *

"Returning to my fifty cases of *Cattleya Trianae*, I found the greatest difficulty in moving them, the cases being too bulky to pass through the narrow places of the road, which years and the elements had worn down in some places to a depth of several feet with a width of two and three feet. The only way left was to build rafts and to float down from the nearest river. The wet season had just set in and several streams which during the dry spell were very small indeed were now full of water but very dangerous on account of large rocks, overhanging branches, stumps of trees and a number of other obstacles. I had to build no less than six rafts about thirty-six inches wide to accommodate six boxes in single file with room at each end for one man to manage or steer the raft in its perilous flight. I had many narrow escapes but after I reached Rio Cucuana the current was less violent, and thence we floated into the Saldana, a river of large proportions. Here I tied the six rafts together to make one, and this floated into Rio Magdalena and finally to Honda, where the plants were embarked on a river steamer which carried them down the

lower Magdalena for six hundred miles to Barranquilla on the coast.

* * * *

"I spent five years of continuous travelling from one part of the country to another, on foot, or on horseback, and muleback, and in canoes or rafts on streams or rivers. When going out to these regions to gather a certain species and possibly knowing more or less of the locality in which it may be found, to gather a lot of plants and return home are merely child's play compared with the moving from one end of the country to another and the looking for anything and everything of interest; but such a hard schooling has its reward inasmuch as when the labors are at an end a thorough knowledge of the country and of its flora is still left as a good and reliable asset.



CYPRIPEDIUM LAWRENCEANUM.

A striking "lady's slipper" orchid from Borneo. The large, showy flowers, one or two to each stem, are white striped with numerous purplish lines.



ZYGOPETALUM CRINITUM FROM BRAZIL.
The flowers, green and white streaked with veins of bright blue, last a long time in perfection.

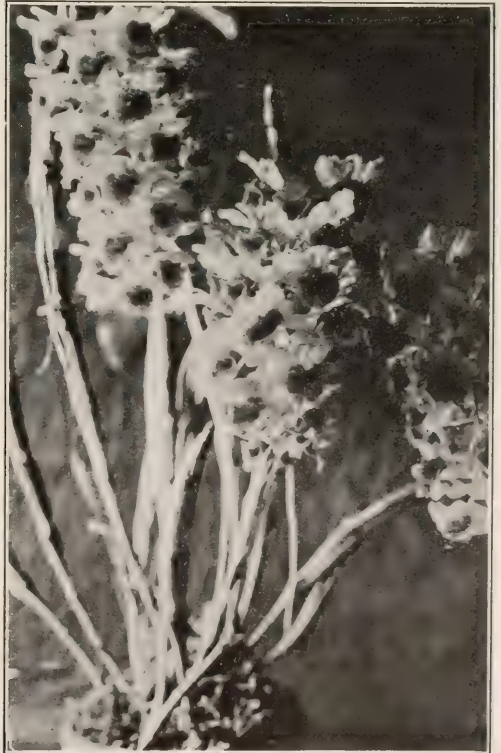
"Comforts and food as a whole are poor—in some parts more so than in others. Antioquia I found to be the best of all in Colombia; its people seem to be a race different from the rest; they are the Yankees of Colombia—a strong, well fed, industrious and enterprising people. Mining of gold and silver, especially the former, is the chief industry of this province, to which might be added the ever spreading coffee planting. The latter, if continued at its present rate, will in a few years totally destroy the most important species of orchids, inasmuch as large tracts of forests where *Cattleyas* and *Odontoglossums* grow are cut down and burned. Taking all these ravages into consideration, I am convinced that orchids will never be cheaper than they are at present."

THE TRAVELLER'S POINT OF VIEW.

From a traveller's point of view the interior of these "orchid countries" is very interesting. I doubt if any part of the world, unless it be Thibet, is less known to the world in general. Just be-

fore and during the Spanish Conquest these countries were thickly populated. Indian villages and towns abounded everywhere, and as some of the Indian tribes possessed a certain amount of civilization, agriculture and husbandry flourished, making subsistence for the conquerors comparatively easy. This explains in a large measure why the Spanish adventurers in the Fifteenth Century made marches through territories and regions which to-day are practically impenetrable.

At the present time the traveller who wants to see these countries in all their natural beauty will find the means of subsistence the most difficult to obtain. In the towns and villages he can find fairly good food and accommodations, but after leaving these he is thrown on his own resources, and must provide for himself by carrying supplies of all kinds. A traveller is not likely to see much that will impress him favorably in the towns and villages. Hence the thing to observe



DENDROBIUM DENSIFLORUM.
Native of India. Flowers are golden yellow in large clusters.

in these countries and the only thing is glorious nature as God there made it. The scenery of the magnificent Cordilleras is superb, one chain towering above another and forming between them great depressions and valleys—some cultivated and fertile, others consisting of impenetrable forests waiting for a more progressive race to utilize them.

Great rivers, some of them thousands

horseback or on muleback and penetrates into the wild forests of the Cordilleras, magnificent vistas will spread before him. Places of vantage will be found scattered here and there on some high ridge and overlooking the country as far as the human eye can reach. The verdant ridges of the Cordilleras will then appear in the distance like the billows of a stormy sea, with here and there the



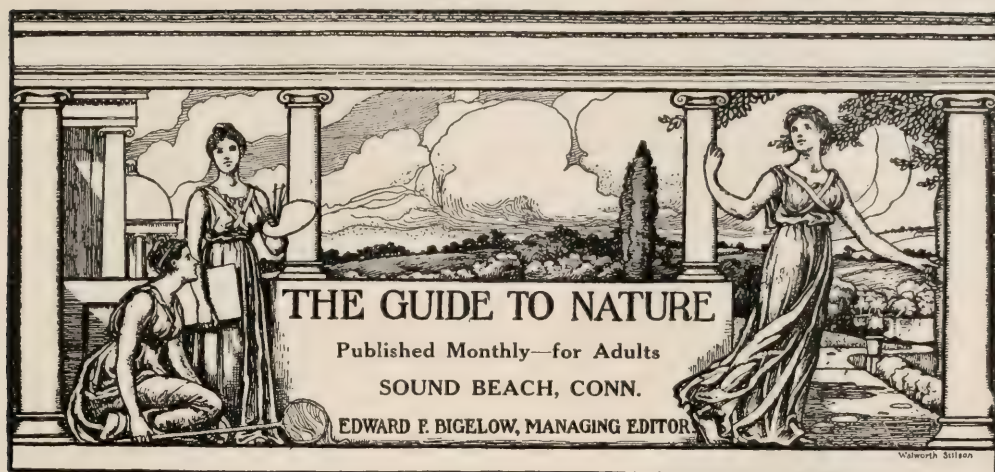
CUT CATTLEYA FLOWERS.

Placed in shallow tanks over which wire netting has been stretched, permitting the stems of the flowers to absorb the water while the flowers themselves are kept out by the netting.

of miles long, flow through these regions, and if the traveller embarks on a raft built especially for his purpose and floats down some of these streams, he will have an experience that will long linger in his memory. As he traverses the country on

snowy cap of a volcano rising above the rest. Add to this the river courses which appear like blue ribbons winding their way through the verdure, and you have a panorama such as may be seen nowhere else in the world.





The Holy Grass at Arcadia's Door.

Mr. William H. Hoyt, a well known and proficient botanist of Stamford, calls our attention to the Holy Grass (*Savastana odorata*) growing in a small space by the roadside a few rods west of Arcadia.

In northern Europe this grass is

strewn before churches; whence the name, Holy Grass.

In reply to an acknowledgement of this information, Mr. Hoyt writes:

"It gives me pleasure to know that you found that species of grass interesting. It could not grow in a more appropriate place than at your door. There is no form of holiness better than that which invites men to think."



THE HOLY GRASS NEAR ARCADIA.

Luther Burbank and the Carnegie Institution.

Everybody knows Luther Burbank of Santa Rosa, California. But those whose acquaintance with him has been obtained through the sensational newspapers know of him as the "wizard" and by other silly and misleading titles. Our readers, and others who have an intelligent interest in nature, know him to be one of the most hard-working, most skillful and successful horticulturists. He is a master of practical work with plants, and the improved varieties that he has produced are many and important.

Every one knows of Andrew Carnegie who has likewise been extensively exploited in periodicals. Many persons in connection with his contributions for the good of mankind know him as the giver of libraries in many parts of the country. Scientists, and others, zealous for the promotion of a knowledge of nature, think of him, chiefly perhaps and surely most appreciatively, as the founder, in 1902, of the

Carnegie Institution at Washington, with a fund of ten million dollars and later an addition of two millions more. This institution is not a department of the government nor is it directly connected with other scientific institutions at the National Capital. Its object is, as the articles of incorporation declare, "to encourage, in the broadest and most liberal manner, investigation, research and discovery, and the application of knowledge to the improvement of mankind."

Some six and a half years ago the Institution wisely decided to aid Mr.



Luther Burbank

From "The Human Plant." Courtesy of The Century Company, New York City.

Burbank in his work, although he had never asked for such aid. Officially, no definite time was announced for its continuance, but some of the trustees assured Mr. Burbank privately that it was to extend for at least ten years and probably for his life. Scientific people generally so understood it, and were glad, with the exception of a few horticulturists who were probably actuated by jealousy.

Mr. Burbank loyally took hold of the scientific work of the Institution, and dictated, corrected and recorrected several thousand pages of manuscript. But several weeks ago a curt letter from the President of the Institution announced without any explanation the withdrawal of the allowance, long after the decision had been published by many newspapers.

Our interests are those of other scientists. In justice to Mr. Burbank, to his friends, to his enemies and to the Institution, the exact situation should be made known. A public insult to so reputable and efficient a worker for humanity as is Mr. Burbank should not be allowed to pass unchallenged. The Institution's real work is far too good to be reduced or even influenced by jealousy; but as the matter is now understood by the writer and by hosts of other friends of Luther Burbank, the Carnegie Institution has disgraced itself.

Perhaps the Institution can explain. If it can, that explanation is respectfully requested. It is due, not only to the Institution, to set itself rightly before the scientific public, but it is due to Mr. Burbank, to his admirers and especially to his personal friends. Let us have the explanation at an early date.

"Thou Shalt Not."

The number of signs bearing the legend: "Keep off the grass," is astonishing, but it is even more astonishing that the injunction should be needed, when the path is self-evident and perhaps more convenient.

It often seems as I go to the table where I keep my periodicals and pamphlets, as if it had been "peppered" with the command, "Thou Shalt Not," and with warnings to "Keep off the grass." Let us examine a few, just as I have been reading them this evening; in fact it was this reading that suggested this soliloquy in print.

First there came to hand "American Forestry," fairly glittering with the army of "thou shalt not" bayonets, from the efficiency of its legislation department. "Conservation" is the

sign to keep off the grass for the benefit of the tree; "Woodman, spare that tree" is enforced by a "thou shalt not."

Then comes the "Journal of the New York Botanical Garden," telling of the devastation of public parks, or the passing of the wild flowers—"the wild flowers in the vicinity of New York are doomed," and further telling of laws, and signs, and teachings, and prize awards, and a Fund for the Preservation of Native Plants.

Next I pick up a bulging envelope with circulars of similar portent from the society for the protection of Native Plants.

"Our Dumb Animals" and "The Humanitarian" tell of laws and their work, and of legal castigations to make people kind and merciful.

"Bird-Lore," with its characteristic enthusiasm and efficiency, tells of the latest legislative achievements in preventing women from becoming savages and wearing dead birds, entire or halved or quartered, on their hats.

The local evening paper tells of State enactments regulating the extent of the slaughter of our four-footed wild animals called game.

And yet this is the age of civilization, the twentieth century is well under way, but the savages are still yelling in their war paint, tearing up shrubs and ferns and other plants—roots and all, scattering them thoughtlessly in every direction. Men are chopping down the trees as though the trees or they are crazy, and without even the sense of good economy. The fools and the vicious are pounding dogs and horses necessitating thousands of dollars to stop them; while women, even mothers, are tearing off plumes from feathered breasts and leaving the nestlings to starve, or shooting down birds in their song, chopping them to pieces and scattering the fragments around their heads, then walking up and down before the public to ask, "Do I not look beautiful?"

All honor to the pamphlets and periodicals that are trying to stop this demoniacal devastation and furious frenzy, but succeeding perhaps in obtaining only a momentary pause.

The state of affairs shows the need of "thou shalt not," and more and more the need of our work that through education and love of nature, yes, even from the amateur's point of view, shall not mandate but induce an "I have no desire to participate in this carnage," There seems to us more and more need not to force but to free, not to legislate but to love, not to spare but to share in its life, not to be merciful but to be merged into the same spirit of life.

Rats! Rats! Rats! Rats! Rats!

I have put a long row of rats as the heading of this article because I want not only to attract attention but especially to ascertain whether or not you are willing to surmount an obstacle to reach a valuable result, and, by so doing, to read an article with a title in which you are not at present especially interested.

Personally I have not been especially interested in rats, but, as a boy recently sent me several and showed by his letter that he was attracted by them, and, as similar letters had been received from other young people, I determined to overcome the obstacle of my dislike for rats and to give them some attention in order to help my correspondents. I am therefore studying how to care for rats, breed them, feed them, etc. Of course I do not mean ordinary barn rats, with their ill smelling bodies and vicious qualities, but the dainty little creatures known as Japanese rats with only kindly dispositions and no ratty smell.

But one of our members, misconstruing this personal interest for a general AA work, stated that she would have withheld her membership if she had known that any part of her membership fee was to be used for the care of these much disliked animals. She apologized when she learned that the rats were cared for at my own personal expense.

But I argue that, if the rats had been the property and kept at the expense of the AA for the good of those that like them, then their care would be perfectly legitimate. Let us bury Ptol-

emy who established the belief that held for fourteen or more centuries that the earth was the center of everything. Your likes or my dislikes are not the center of everything. Life is one great, wide, intricate fabric. We come into intimate relations with other people, and if we would do them good we must learn to look at things from their point of view; therefore I maintain that rats! rats! rats! rats! or even snakes! snakes! snakes! snakes! snakes! and bugs! bugs! bugs! bugs! bugs! shall be used for the benefit of those who do like them and are influenced by them, regardless of the fact of my liking or of my repugnance.

I once knew a boy whose whole interest in nature was aroused through his introduction to a snake. The wise teacher let him play with the snake to his heart's content although he disliked snakes. He did not dislike the boy.

Nature knows better than to produce two things alike; when she produced

you and me she said practically I repent of the job and will never again produce another like either of those. And yet, you and I persist in inflicting upon others our likes and dislikes as if we were the potentates of the universe.

Dr. David Starr Jordan at Arcadia.

President David Starr Jordan of The Leland Stanford Junior University, California, was a guest at Arcadia in July. Notwithstanding the multiplicity of his cares as the President of one of the greatest universities of the west, as the President of The American Association for the Advancement of Science, as a prominent participator in the International School of Peace and in many other important offices, he is always ready to answer in detail a simple question from a child. For many years he has assisted the writer in the "Because We Want to Know" department of "St. Nicholas" magazine, and in answering the many questions that come to The



DR. JORDAN AND THE ARCADIANS.



DR. JORDAN IN SOUND BEACH'S ARCADIAN SCENERY.

Agassiz Association. He is a Trustee of the Association and Dean of the Council of assisting scientists. He was a pupil of Louis Agassiz and has always taken

an active interest in our work since its establishment in 1875.

During his stay at Arcadia he made a careful inspection of the entire equip-

ment and of our methods of work, expressing his approval of everything with but one complaint, which is that so few inquiries from children are referred to him. It is astonishing that a man with interests so diversified should actually consider it a favor to be allowed to answer inquiries from little children as well as from teachers, parents and scientific investigators. He is an inspiring example to all students of nature, not only on account of his vast store of learning, as evinced by his almost innumerable books and magazine articles, but chiefly from his intense and enthusiastic desire to be helpful to others, provided the inquiry and the interest are genuine and sincere.

My Last Talk With Peter Cooper.

BY E. J. EDWARDS, NEW YORK CITY.

Peter Cooper, who did the greatest work of his life when he founded Cooper Union, in New York, and thereby made his name wellnigh imperishable, was eighty-nine years old when I had my last chat with him. That was in 1880, three years before he was gathered unto his fathers.

I had called upon Mr. Cooper at his home in Irving Place for the purpose of obtaining his views upon the greenback question. The old gentleman was a very earnest advocate of issuing irredeemable paper money based upon the face and credit of the government.

He received me very cordially in his little library. He wore a loose morning gown, or jacket, and the heavy lenses of his spectacles, which carried side pieces, caused his eyes to gleam with unusual brilliancy and to appear of great size. He blew up an air cushion to its full capacity, then seated himself in a cozy chair and began to chat in an easy fashion about the greenback movement. And as I listened to him it seemed to me almost incredible that I was seated before the man who had designed and built the first American locomotive, in 1830, and the method of propelling canal boats by an endless chain, and who was among the earliest to promote the laying of the Atlantic cable.

WORLD WAS BEAUTIFUL TO HIM.

At length, and without showing the slightest sign of fatigue, either physical or mental, the old gentleman outlined his views on the money question. Then, as I prepared to leave, he accompanied me along the passage leading from the library to the front door, which he opened before either myself or a servant nearby could make a move to do so. Passing through it, he took his stand upon the broad top step and looked with an absorbed countenance in the direction of little Gramercy park, one corner of which was visible from where we stood. He put his hand upon my shoulder—not for support, it seemed to me, but to direct my gaze where his was. Then at last he spoke, and I fancied that half regretfully he turned his eyes to me from the exquisite vista before us of that little gem of parkland in the heart of New York.

"This is a very beautiful world," he said earnestly, simply. "I like to look out upon it, and each day as I grow older and see with my eyes—somewhat blinded though they are by age—the beautiful things which God has given us, and which every one may enjoy without any cost if he will only look. I realize more and more how exquisite is the charm of nature and what the world's perfection really is. And as I have grown older I have also come to realize that there is more of good than of evil in the world—that there is some beauty in every human being, no matter how low he may have fallen, just as there is beauty in everything that grows.

SERENE IN HIS LAST DAYS.

"Yes, this a beautiful world—a very beautiful world. I am now eight-nine years of age. Not for long now am I to be permitted to look out upon it. Yet I hope to make the best of the brief opportunity that is left me to behold God's beauty all about me. It gives me serenity and peace of mind to see it and yet there is a lingering regret that I cannot enjoy it much longer.

"I hope you will come to see me

again. Come when the leaves have turned. To me there is no sadness in the falling leaf, if it has color in it. You have spoken of Cooper institute. Ah, I could leave no better legacy to my fellow men than the power to see daily the beauties of the world God has given us to live in; for if we can do that we shall all have riches that cannot be lost or in any way taken from us."

I left him standing on the broad step in front of his door, and as I looked back before turning the corner the old gentleman, whose long life had been crowded with unusually useful activities, was still standing on the step, and his eyes were turned where the summer foliage of Gramercy park was showing itself between grim walls of brick and stone.

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An Enthusiastic Student of Nature.

The accompanying illustration is of a scene in Bangall, Dutchess County, New York. Mrs. Arthur Chamberlain, the late wife of the editor of our department, "Mineralogy," was an ardent lover of nature and spent a part of every summer at a farmhouse in the above named town. Although but a few hours' ride from New York City, this locality is so isolated that one could live here for weeks without seeing a person outside of the farmer and his help. The birds and rabbits are so tame from not being interfered with that while they will look at one with seeming wonder they will not run at one's approach. On the morning that the photograph was taken Mrs. Chamberlain, barefooted and in old clothes, had been out picking berries when she ran across the son of the "Weather Prophet" who had a camera with him and who proved to be a subscriber to "The Mineral Collector." He therefore took Mrs. Chamberlain's picture and presented her with the negative. The photograph from which this half tone was made was printed and mounted by Miss Davids, daughter of the founder of Davids' Inks, who is herself a nature lover. Mrs. Chamberlain was so much



* MRS. ARTHUR CHAMBERLAIN.

in love with the wild beauty of this spot that she purchased a plot of land, known as "The Ravine," and had she lived would have erected a bungalow on the site.

Fear Changed to Appreciation.

In times past our ancestors lived close to nature. Its forces and phenomena enwrapped them upon all sides conditioning them absolutely. The forests, the rocks, streams and waterfalls were inhabited by spirits who could injure or aid them. Awe and fear of nature filled their minds. This is the ancestral influence which, in our higher and clearer way of looking at the world, has developed into love of nature. We no longer fear, and in its stead has come the appreciation of the wondrous beauty and harmony and attractiveness of nature.—H. W. Fairbanks, Berkeley, California.

The Japanese Beautiful World.

BY MASUJIRO HONDA, NEW YORK CITY.

[Masujiro Honda was formerly Professor of English in the Higher Normal College Tokyo, and was sent to the United States and England by the Educational Department of the Japanese Government to study the methods of teaching modern languages. Translated into English "Human Bullets, a Soldier's Story of the Siege of Port Arthur." Lectured on Japan and on International Peace both in England and America. Is now Secretary of the Oriental Information Agency, established in New York last year with the object of supplying business men and the general public with accounts and reports of the real conditions of Japan.—Ed.]

As descendants of nature-adorers as well as of ancestor-worshippers, the people of Japan have evolved among themselves a peculiar way of deriving much enjoyment from simple, inexpensive things of nature. An old classical writing of our country narrates a story of protecting frogs from the ravages of crows. The nobility living in the Imperial capital used to have ponds in front of their residences, in order to keep the croaking little musicians, that were usually heard only in paddy-fields of the country; and across the roofs of their palaces, ropes were spread to scare away ravenous birds, that otherwise would have perched there to descend upon the innocent dwellers of the pond. Again, it was an old custom of ours to have insect-listening parties out on the moor. Rugs were spread on the grass, under a bright moon; tea and refreshments were served; and men and women quietly listened to various kinds of singing insects, to the eulogy of which they composed short verses. It is a pity that the busy life of modern days has taught us to confine insect-singers in bamboo cages, instead of leaving them in their natural surroundings.

What a primitive taste, you will say, to find any music in the croaking of the frogs or in the chirping of the insects! Yes, nothing can be more primitive than nature herself; but if we listen patiently and appreciatively, her still small voices give us scarcely less solace, less encouragement, less instruction, than that voice within ourselves which is far more still and small.



MASUJIRO HONDA.

We have learned to hear the voice even of a flower. The lotus—that emblem of the human soul, because, growing in the mud of material existence, yet it blossoms out in everlasting splendor—when the lotus-bud bursts open before sun-rise, it does so with a sudden popping sound. Very early on a summer's morning, people will throng to a lotus-pond to wait with bated breath for a couple of hours, just to listen to one single pop of the bursting bud, as if to the very voice of eternity.

The Japanese art of floral arrangement originated from a genuine love of natural beauty. Centuries ago, a Buddhist priest felt unspeakable compassion for the flowers, picked for momentary inspection, and soon thrown on the road. He exercised all his ingenuity to keep those discarded flowers alive as long as possible. This has since developed into an elaborate system of floral composition, uniting

lineal and color combinations with secrets of preserving plant-life. Artificial and embroidered flowers are worn on the hair or on the dress by women; but real living flowers we prefer to enjoy, not as a part of our personal adornment, but as objects of admiration outside ourselves. This is one explanation of why portrait painting was comparatively neglected by our classical artists, who devoted their skill more to natural scenery, and to plant and animal life. Supposing that the hanging picture in the alcove represented a sailing-boat on the sea, we should place before it an incense-burner in the shape of a crab or tortoise, which would suggest an idea of the beach. Then the spectator of these art objects can be a part of the whole group. He may imagine himself standing on the porch of his seaside villa. It is rather gratuitous, therefore, to have his kind prominently duplicated in the picture.

Nor was our sense of smell left uncultivated. Incense parties were in vogue. A brand of incense slowly burning in a burner was passed around; each one of the party named, afterward, ten to fifteen ingredients composing the brand; and the successful guesser received the proffered prize. It may not be convenient to have very sensitive olfactory nerves when traveling in some parts of the world, but certainly there is enough variety of sweet odours, perfumes, and aromas to make our noses worth having and educating. Moreover, a good smell suggests cleanliness, order and health. Ancient warriors of Japan made it a rule to burn incense to their helmets on the eve of a decisive battle, so that, if they were unfortunately killed on the field, the foe or comrade who should take care of their bodies might be saved much unpleasantness. In the recent conflict with Russia, many a Japanese soldier and sailor substituted for incense a sprinkle of perfume on clean, fresh underwear. Most of them used perfume for the first time in their lives, simply for the sake of being clean and presentable even after death.

Tea-drinking was introduced from China about seven centuries ago by Japanese monks, with a view to keeping themselves awake for nocturnal meditation. It has since developed into our tea ceremony, which combines keen appreciation of delicate taste and flavor with grace and elegance of deportment. Cooking itself is a fine art with us. Eatables of all colors, all chopped into fine pieces, are often arranged in fanciful forms of landscape gardening. Sometimes it requires much discernment to detect what we are eating. Toward the end of a banquet, the chief cuisinier would be summoned before leading guests, who would compliment on the skill displayed, and thank accordingly. Of course such comments should be intelligent and appreciative, and made without recourse to foolish questions. And our use of chop-sticks from early childhood, instead of knives, forks and spoons, has trained our fingers in manual dexterity, which is further reinforced by the handling of writing-brushes, and calligraphy is a branch of fine art both in China and Japan. Good hand-writing is valued just as much as good painting.


Thus we create a beautiful world of sense-enjoyment, which no nation of land-grabbers can possibly wrest from us.

Cooperation in a Great work.

Soon, very soon, our brief lives will be lived, and our affairs will have passed away. Uncounted generations will tread heedlessly upon our tombs. What is the use of living, if it be not to strive for noble causes, and to make this muddled world a better place for those who will live in it after we have gone?—Winston S. Churchill.

We are sure that we live in this world, and that our successors will also live in it. There is no doubt in that. This is not a matter of faith but of realization, or—sad as is the truth—it may be of ignoring by ignorance or by indifference.

CORRESPONDENCE AND INFORMATION



An Expressive Coincidence.

Duluth, Minnesota.

To the Editor:—

The July number of *THE GUIDE TO NATURE* at hand, and very interesting—as usual. Did you notice the odd little coincidence on page 111? It reads:

FIRST PRIZE—A POCKET MICROSCOPE.

“TEACHES YOU TO BE GLAD WITH WHAT YOU HAVE.”

That's perfectly clear, of course, but I couldn't help thinking, what's the matter with reading it the other way, viz: “A pocket microscope teaches you to be glad with what you have.” And so it does, by showing you that you have so many beautiful things you never dreamed you possessed. If, by its aid, you can transform a tiny sprig of insignificant flowers into a stalk of stately lilies—why then you truly “possess” those lilies; and its use reveals a never-ending wealth of beauty available to all.

Yours truly,

NELLIE B. PENDERGAST.

Another Angle of View.

Duluth, Minn.

To the Editor:

Here is Dr. Long getting his feet wet because he will not have rubbers to break communion with Mother Earth; while the writer likes to wear them in the woods, even though the ground be dry as ashes, because they deaden the sound of my own footsteps and enable me the better to hear the faint rustle or the snapping of tiny twigs that tell of the passing of the little wood folks, and the sense of their nearness is a pleasure, even though I cannot see them.

In regard to Mr. Roosevelt's hunting. As far as personal feeling is concerned, the writer agrees heartily with

Mrs. Darragh. Though fond of target shooting, I never fire at a living mark, nor accompany those who do. Neither do I wear birds or wings (and probably Mrs. Darragh does not). On the other hand, I am not a vegetarian, and *do* wear furs.

I believe one's prejudices are one's own affair, and bound by no rule save the leadings of that mysterious entity we call ourself, *so long as they remain personal*; but when we use them as a measure to condemn others, we are bound to be both logical and consistent. And are we?

For instance, is there any more real cruelty, *per se*, in a good marksman shooting an eland, a gazelle or a wart hog, than in the butcher killing an ox, a calf or a pig? The former would suffer no more, and it is but fair to presume that the latter are not a whit more willing to give up their peaceful, contented lives than are their wild cousins.

If one takes the position that no life should be taken for *any* reason, it is easy to be consistent (in theory, but exceedingly difficult in practice, since we should soon have to move out and leave the earth for the creatures who had it first); but when one says that life should not be taken *except for good reasons*, the bars are let down, and it becomes a question of personal judgment and opinion.

What constitutes a good reason for killing an animal? We (as a people) kill in self-defense, for food, for clothing (including such unnecessary luxuries as ornamental furs, etc.), because the animals crowd us, or because we wish to invade their territory. We keep a cow and kill a calf, heedless alike of the physical suffering of the calf and the mental anguish of the

bereaved mother. We keep a pet cat and drown the surplus kittens—etc., etc., etc.

No article the writer has seen has given the impression of Mr. Roosevelt gloating over dying agonies. Certainly those brief moments are not the only interests of an expedition such as this has been, nor the only information with which the public has been regaled. The statement is made that nothing was killed that was not wanted for food or for museum specimens. Of course, if he had not gone to Africa he would have no caravan to feed, but doubtless the same negroes would have been killing other animals for themselves, as they must eat, whether they work for Mr. Roosevelt or not.

And among the many questions to be struggled with is—are museums justifiable? If so, they must have specimens; and these will be furnished either by men who love the chase or by men who simply kill for hire. Which is better? Or which to be condemned?

As for the wonder "why He does not reach down and stay the bloody work"—well, when we remember that He did not interfere with the regular practice (not very long ago) of men shooting from car windows into the herds of buffalo on our plains, killing and wounding as they could, and leaving the victims useless where they fell—when He did not interfere with the ruthless murder of the great auk by sailors and others who ran amuck among them, killing simply because they had found something which could not run away—when He did not stop the extermination of the Egret heron by the brutal slaughter of the nesting mothers and the starving of helpless young; or the sacrifice of thousands of song birds; or the killing of hundreds of noble elk merely for their teeth: all for vanity pampered through greed of gold—when He did not stay the fate of the beautiful passenger pigeons, which were clubbed from their roosting trees and fed to the hogs—it is perhaps not to be wondered at that He does not interfere with a hunter of Mr. Roosevelt's type.

And there is perhaps another reason, namely: that He knows that a gazelle killed by a well-aimed bullet will suffer less than if the hunter stayed his hand and the little creature lived (perhaps but another day) to be pulled down and torn to pieces by a lion or tiger.

Indeed, one great drawback to the study of natural history—not in the laboratory, but through field and forest, until one comes to know and understand and love the wild folk, is the shadow of the tragedy that awaits them all. And knowing, as we cannot help knowing if we study life at all, that most of the tenants of the globe were created to prey upon each other—that perhaps no moment of time passes, or has passed for countless ages, that some wild creature, of high or low degree, was not struggling in an agonizing death, it is not surprising that the foundations of heaven are not shaken because some animals fall by bullet instead of by teeth and claws.

All this is not to justify the boy who pulls off the legs of grasshoppers. We *kill* all injurious insects, but need not torture them. Also kindness to the animals that we have always with us is certainly not in vain, as they live to enjoy or suffer, according as we treat them; but this is aside from the question of what animals may be killed, and why.

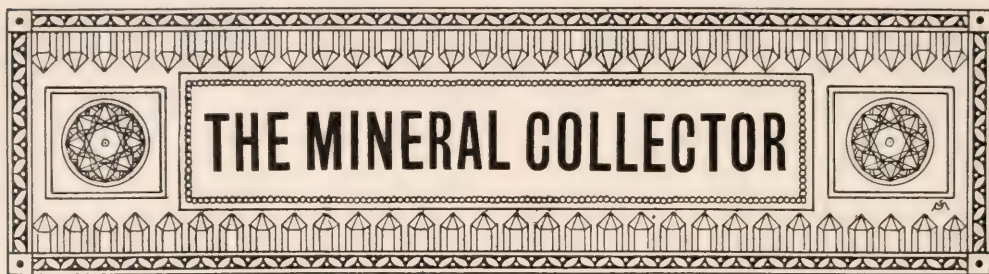
Of course the point of Mrs. Daragh's accusation is largely the question of the spirit in which the killing is done, but possibly her sympathies have led her to be unjust, and injustice never helped any good cause; and in view of the facts briefly mentioned, and the endless list that might be cited, is it fair to single out Mr. Roosevelt as a hideous example of wanton cruelty—with no rebuke for the eminent scientists who accompanied him, to preserve for the benefit of mankind the specimens obtained (as well as to trap and shoot many birds, small mammals, etc., themselves), and no weighing of his reasons for killing, as compared with the reasons for the killing which goes on all around us

every day, and to which we pay no heed.

NELLIE B. PENDERGAST.

P. S.—This may seem a strange line of argument from one who has a passionate love and sympathy for all animals; who believes that we are not the only animals who have souls; who

never loses an opportunity to urge camera hunting instead of rifle hunting; and to whom the cry of a hurt creature echos long: but I firmly believe that injustice, exaggeration and hysterical sentiment do more harm to the cause for which the AA and the Humane Societies stand, than all the indifference which they encounter.



Address all correspondence to Arthur Chamberlain, Editor, 56 Hamilton Place, New York City

A Fine Kaolin Locality.

BY EDWIN W. HUMPHREYS, NEW YORK CITY.

Within the past few months, an exceedingly interesting excavation was opened at the junction of Westchester Avenue and Southern Boulevard, Borough of the Bronx, New York City. The subway trains pass this particular spot, although it is here no longer a subway but an elevated road, and it was while riding by in one of them that my attention was attracted to the cut. The particular feature which first captured my notice, as I gazed from the car window, was a large, white mass of material that I took to be a clay lens. Later, on visiting the excavation, the uncompleted cellar of a new building, I found one of the most interesting geological features in the Bronx. The cellar was in the form of a quadrilateral and was about nine and one-half feet deep; though in the center, where the boiler room was to be, it was deeper. The east wall of the excavation was in part solid rock, a heavy schist, while meeting it, with an abrupt contact, was a mass of soft, "greasy," decomposed rock. The part mentioned above and a portion of the south wall were the only parts of the four walls that were solid and undecomposed. To give some idea of the size of the opening, it may be stated that the west

wall was about eighty-five feet long and that the length of the decomposed material forming part of the east wall was fifty-four feet. The decayed rock probably extended some distance westward and northward under the surrounding lots.

Two complete walls, the west and the north, showed fine sections of the geological structure of the materials composing them. At the top, a layer, varying in thickness, of the coarse, glacial debris so common hereabouts, was revealed; below was a zone of decomposed material derived in part from the underlying, native rocks, which were very greatly decomposed. The upper portion of this lowermost zone of decomposed native rock was separated from the disturbed material above it by a sharp line, the line that marked, for this particular locality, the lowest limit of the glacial planing. This condition of affairs indicated that the rock had been decomposed before the glacier reached it, but that for some reason or other the glacier did not sweep it all away, as it has so commonly done throughout this region. This is why it is so interesting geologically.

The rotted rock in place was a schist and cutting across it were numerous pegmatite dikes, one of them six feet wide. These, too, were decomposed

and in them were found the abundant masses of kaolin. Some of them were pure white, while others were stained various shades of yellow and brown. Some of these kaolin masses were larger than one's fist. The resistance of quartz to decay was well illustrated in the dikes; for, while all the other minerals were decomposed, the quartz stood out as firm and resistant as ever. So rotted were all the rocks that with the exception of the hard parts of the east and south wall already spoken about, the whole cellar was dug with pick and shovel.

In passing, it may be said that the history of the excavation well illustrates the necessity of speed in collecting in openings of this character; for, before the cellar was completely dug, the foundation walls began to be thrown up. This, of course, quickly rendered the place inaccessible to the collector, though it is hoped that when some of the neighboring lots shall be excavated, equally fine opportunities will be offered.

Geodes.

BY HOWARD R. GOODWIN, PHILADELPHIA,
PENNSYLVANIA.

"Do you say there is no beauty
Is this rock so gray and rough?"

Take a hammer, strike upon it,
It is hollow sure enough
And, within, a fairy grotto
Flashes on the dazzled sight;
All its walls o'erlaid with crystals,
Sparkling as they find the light!"

Lucy Wells Morse.

When exhibiting my collection of minerals to visitors, I notice that every one is interested in the geodes, named from the Greek "gaeodes" meaning earth-like. These are usually rough and unattractive until broken open by the hammer of the mineralogist. Then, —well, the few lines quoted above tell the story. One of the numerous fine examples of these geodes in my collection is here illustrated. It is ten inches long and about five in depth, the outer part of banded chalcedony lined with crystals of amethyst, and is from Brazil where many fine specimens are obtained.

Some curious geodes of chalcedony containing liquid inclusions are found in Uruguay, one in my collection being about two thirds full of liquid which is clearly visible through the thin shell of semi-transparent chalcedony. These hydrolites probably contain the solution from which the crystal lining is deposited.

Some fine little geodes of chalcedony are found in the Bad Lands of South



A CHALCEDONY GEODE FROM BRAZIL.

Dakota. They are hardly ever larger than a hen's egg, and the interior is lined with beautiful, frost-like, drusy quartz, while sometimes loose, doubly terminated crystals of quartz or calcite are found in them.

I have one in which plates of transparent selenite nearly fill the cavity. At Ballast Point, near Tampa, Florida, geodes of chalcedony have been found having the form and outward appearance of coral. These are pseudomorphs by replacement, and some of them are remarkably beautiful.

In certain limestone formations of Illinois, Missouri and Iowa, geodes are plentiful and range in size from one inch to a foot or more in diameter. The "Keokuk beds," as they are called, afford great quantities.

Inside the shell of quartz or chalcedony, other materials are frequently found, calcite, dolomite, selenite, pyrite and sphalerite being the most common,

while millerite in delicate, hair-like crystallizations is occasionally met with, and I have seen geodes that contained asphaltum—no fairy grottos these!

At Bridgeport, Montgomery County, Pennsylvania, I have collected geodes of quartz that compare very favorably with those from South Dakota. They differ from those, however, in not having a shell of chalcedony.

Limonite commonly occurs in the form of geodes, the interior surface covered with a velvety coating of black limonite, or the interior may present mammillary or stalactitic forms, dull, brilliant or iridescent as the case may be.

The study of geodes is an interesting one, and the subject has been well handled by Mr. Elmer Bengé in a series of articles published in "The Mineral Collector," Vol. IV, to which those interested are referred.



Business Men and the AA.

There is much of common sense, and explanation of a puzzling situation, in the following quotation from a letter from an AA member:

"Men of business training, not quite familiar with the details of scientific work in natural history, cannot be expected to adapt themselves to the features of such an institution as The Agassiz Association, any more than the workers in such an association would be able to conduct an organized business, and yet both are of equal importance. The Agassiz Association is such a power for good in the education of the people that very many business men would be glad to back such an institution heavily could they but understand the effects of its working. Mr. Carnegie has been particularly

happy in his observation of instances of this sort, and he has an instinct which allows him to set useful men at work without their being distracted by the need for attention to financial matters."

No organization for science and education, and particularly of helpfulness to young people, has ever accomplished so much as has the AA in its thirty-five years of existence, with so little money. The untiring, faithful, self-sacrificing spirit of many of its workers is convincing proof of what could be done with reasonable financial support. It has always had a superabundance of energy and a deficit of money. What the organization needs is a rating on what has been done, and an appreciation of the possibilities for the future.

Recent Chapters.

Oliver Wendell Holmes School Chapter, Oak Park, Illinois. Officers: President, C. E. Hemingway, M. D.; Vice-President, Mary L. Hood; Second Vice-President, Ross Rogers; Recording and Corresponding Secretary, Frank Priebe; Curator, Robert Helme; Assistant Curator, Ernest M. Hemingway.

This Chapter was organized at the request of the principal of the school and her advisors among the parents' and teachers' association. The nucleus from which such definite growth was

conduct a meeting properly and learn to speak while on our feet.

The birds which reside here as well as the migratory species are constantly studied. We also collect specimens to add to the museum which is a part of our common schools. This is a very attractive feature and a stimulus to those who are not members to want to learn more when they see the specimens.

We have held some twenty-four meetings this spring and summer with an average attendance of about forty-



A GOOD SUGGESTION OF EVERY CHAPTER HAVING OWN DESIGN OF LETTER-HEADING.

From Chapter 723, Oak Park, Ill.

produced was the member of old "723" who has ever been loyal to The Agassiz Association ideals and who has devoted many years to observing details with the thought of conveying the results to others.

The objects of this Chapter are the study of all the branches of the natural sciences which can be undertaken with observation work in the field, quarry, along our lakes and rivers, in our woods, parks and museums and the heavens above us, and also the definite work of promoting kindness and relief of suffering to all dumb creatures together with the development of character among its members and the cultivating of ability to make honest and accurate observations. We also observe the parliamentary law required to

two. We meet on Wednesday afternoon after school, and have not only members present, from the fourth to the eighth grade, but many teachers come in to learn and listen. This is a great work to develop the best in a youth.

Oak Park B Chapter, Oak Park, Illinois. Officers: President, C. E. Hemingway, M. D.; Vice President, Ernest Miller Hemingway; Recording and Corresponding Secretary, Clarence Helme; Treasurer, Robert Helme; Curator, William C. Ingle.

(This is a reorganization and rejuvenation of faithful and efficient "old 723" which has done so good work for many years. We are glad to congratulate it on the "new lease of life." The

following is the report of the President.—E. F. B.)

The membership will be a few old ones with a few new ones. During the fall and winter, they will meet at my home and act as experienced guides in assisting this new school Chapter and perhaps in organizing more school Chapters. All the members of the school Chapter were to keep notebook records of observations and vacation experiences, so the fall will bring us plenty of material for interesting meetings.

L. Merritt; Corresponding Secretary, Miss Leonie E. Schmidt; Treasurer, Miss Helen E. Boles.

Greenwich D Chapter, Greenwich, Connecticut. Officers: President, Mr. Harry Alfred Greve; Vice-President, Miss Mildred L. Duff; Recording Secretary, Miss Evelyn Agnes Peterson; Corresponding Secretary, Miss Helen Dwenger; Treasurer, Mr. Leonard Ochtmann.

Greenwich E Chapter, Greenwich, Connecticut. Officers: President, Mr.



THE OFFICERS OF THE NEW CHAPTERS IN GREENWICH, CONNECTICUT.

Halcyon Chapter, Halcyon, California. Officers: President, Mrs. Jane W. Kane; Vice-President, Mrs. Louise Furlong; Recording Secretary, Mr. Wm. W. Kent; Corresponding Secretary, Miss Gussie A. Beyer; Treasurer, Mr. Otto Westfelt.

Greenwich C Chapter, Greenwich, Connecticut. Officers: President, William J. Crichton; Vice-President, Ruby B. Wilber; Recording Secretary, Marie

August Schilt, Jr.; Vice-President, Mr. Simon Flaherty; Recording Secretary, Mr. James E. Crichton; Corresponding Secretary, Miss Elizabeth Sellar; Treasurer, Miss Maud Mansfield.

Greenwich F Chapter, Greenwich, Connecticut. Officers: President, Mr. George Peck; Vice-President, Miss Louisa M. Nickerson; Recording Secretary, Miss Helen Ward; Corresponding Secretary, Mr. George W. Allison; Treasurer, Miss Florence Irwin.

Greenwich G Chapter, Greenwich, Connecticut. Officers: President, Mr. Arthur F. Ochtman; Vice-President, Miss Alice Wild; Recording Secretary, Mr. Harold C. Powers; Corresponding Secretary, Miss Margaret Seymour; Treasurer, Miss Elizabeth G. Doran.

Sussex County Nature Study Club Chapter, Newton, New Jersey. Officers: President, Mrs. E. R. Harrington; Vice-Presidents, Miss Blanche Hill and Miss Mary Kanouse; Recording and Corresponding Secretary, Mrs. Horatio N. Crane; Treasurer, Miss Ardelia H. Allen.

Special Student at Arcadia.

G. B. Affleck, A. B., a member of The Agassiz Association, of the International Y. M. C. A. Training School of Springfield, Massachusetts, spent two weeks at Arcadia, devoting the most of his time to ants and photomicrography. He expressed much pleasure with our facilities for special biological work.

Is It a Sudden Awakening?

BY DORIS I. NEEL, CORRESPONDING MEMBER NO. 2132 OF THE AA, SOUTH HARWICH, MASSACHUSETTS.

I think so many people need a "start." Nature "grows on people." But they do not become nature lovers quite suddenly, do they? They need awakening first to find out how much they don't know. Don't you think that a great many people lack interest in nature because they have the mistaken idea that it is necessary to know a lot even to begin to know anything of birds or flowers at all? I wish every one could just get the "start," the little push forward into that one great work of interest—the creation of God's hand.

That is why I have tried to show up the commoner birds that so easily make themselves acquainted. As it is indeed "the little things that count in life" I think each one can count in the making of a "start."

The La Rue Holmes Nature Lovers League

By George Klinge, Summit, New Jersey

"THE GUIDE TO NATURE" is the official organ of the LaRue Holmes Nature League. It is important, for the general League interest, that the magazine be liberally supported, through the active cooperation of League members—George Klinge.

L. H. Nature League Motto: "Self-sacrifice; heroism for another."

Our Work and Purpose.

One hundred and thirteen addresses have been given during the past year, to L. H. Nature League Chapters, under the direct auspices of the Central League organization, apart from those independently arranged for by individual Chapters.

These addresses have dealt with subjects connected with ornithology, forestry, and other branches of science, nature protection being a chief theme for consideration.

It will be noted that while the L. H. Nature League forwards the cause of nature study as an ennobling and economic cause, its especial reason for being is to perpetuate and increase human happiness through a pronounced and determined effort in be-

half of nature protection. The corner stone of the movement is the sentiment of kindness toward every living thing. A League-member whose life-aim is not to make the world happier as he passes on is false to the cause.

Through the preservation of nature's God-given riches alone, can the health, happiness and financial prosperity of this nation be maintained.

As League members, consecrated to a cause, we need to discover ways of advancing movements aiming to increase protection, and to ask ourselves if we really accept, as opportunity, chances to cast in our weight with the various influences tending to preserve, for ourselves and future generations, the remnants of desecrated nature.

Constancy in Bird Life.

She has come again to occupy the little weather-beaten house on the arbor. I heard the ecstatic song, which I think no male house wren ever gave with greater unction, and saw the tiny wings flit by—they had just passed from the doorway of her little mansion. At first there was a hope that she had not, this season, come alone, but that somewhere a little mate were in the back-ground. This, however, was a delusive hope.

The spring of 1908 was the season of tragedy in the life of the little house wren; her mate was lost to her; we will never know the circumstances through which his little life drifted out, but we know that she came alone to the wren-box; renewed the nest within it; laid the usual number of eggs, which, being unfertile, never hatched.

No male ever sung more eloquent songs; no little mother ever brooded over eggs with greater constancy; and so spring passed, and summer; only the autumn-breath drove her from her nest on the post—though all her hope was unfulfilled—to take refuge in a milder climate.

Here was constancy indeed, but, in 1909, a new nest was woven in the wren-box; a new set of sterile eggs was laid, and the old ecstatic songs were heard among the alders. Constant to the little mate of the past, she came again alone; constant in hope, as in the past, she brooded over the sterile eggs till summer and autumn had passed, and again the little wings drifted away alone.

Was ever love and hope more constant, or was there ever a little bird-home of more pathetic story, though echoing through a long period of days, the music of ecstatic song?

The Little Tired Loon.

BY HARRIET H. BREWSTER, SUMMIT, N. J.

It was a bright August morning on the Rangeleys. One passenger took the early boat on Lake Mooselucmeguntie north from Bemis, and, from the vantage point of the pilot house, enjoyed the beauty of lake, wood and

mountain, and the captain's hospitality.

All around the lake were dense woods, except where blackened trunks and bare rocks told the dreary story of forest fires. A tinge of yellow in the birches gave a hint of coming autumn. Off to the north a flashing light on Mount Aziscohos showed that lookout was kept there for forest fires.

As we steamed through the narrow channel by Toothaker Island, the captain pointed out a loon, with its little one, swimming steadily along parallel with the course of the boat. For several minutes they kept their course, instead of diving as loons usually do when frightened. Then the little one grew tired. Jumping on the shoulder of the large bird, it rode comfortably on until they were lost to our sight in the shadows near the shore.

More Observations of Mice.

BY NELLIE B. PENDERGAST, DULUTH, MINNESOTA.

I give them water in an old ink-well. It is rather deep, and I was afraid some of the tiny ones might tip into it sometime when the water was low in the well, and be unable to scramble back up the slippery sides, so put a small pebble in the bottom of the well. Twice when I had forgotten to fill it up, I found the mice had removed the stone to get the last drop of water, and the third time they evidently came to the conclusion that the stone in some way interfered with the water supply, as they removed it so far that I could not find it again.

Did you ever see a person who was afraid of fire arms try to shoot a gun or revolver? They will grasp it tightly, aim it carefully—but ten to one they'll shut their eyes just as they pull the trigger. And there are others. I have taught many mice to eat out of my hand, and just at that critical time when they are still afraid, but had decided to take the risk, nine out of ten of them would creep very cautiously, nearer and nearer, till, just as they got within reach of the tempting morsel, they would *shut their eyes tight* and take a bite.

THE CAMERA

Wild Flowers Decoratively Arranged.

BY MRS. M. E. McDOUGALL, PLATTSBURGH,
NEW YORK.

All flowers should be put in water
for some time before photographing

them, or they will droop during the exposure.

Different shades of cartridge wall
papers make good backgrounds; then
with portrait attachment even the



DAINTY ARRANGEMENTS OF ARBUTUS.



LILIES PHOTOGRAPHED ON A MAHOGANY TABLE.

very small flowers are brought up to fair size. Rounds of glass with holes for the stems used for a few flowers and leaves give the effect of growing plants. Clear glass finger bowls or vases partly filled with water give stems and pleasing lights.

Sometimes an open book with a poem, such as Whittier's "The May-flowers," makes a good background with arbutus. He wrote also "The Trailing Arbutus."

Water lilies laid on a mahogany table give a perfect mirror effect. The reproduction from a photograph in *THE GUIDE TO NATURE* for May, 1908, page 61, was arranged in that way.

Sometimes in the woods or fields roots of hepatica and also of other kinds of wild flowers can be lifted and placed at the foot of a white birch or any tree with fine bark, and so arranged as if growing there, making a very pleasing background.

There is no purer pleasure than the visiting of the haunts of these dainty wild flowers—such a delight to find them, and a double delight to those who use a camera successfully.

Indian Pipe (*Monotropa Uniflora*).

BY GEORGE O. STODDARD, NEWTONVILLE, MASS.

Fleeing from the burning heat of flower-decked fields on a midsummer's day we seek the cool depths of the pine woods. Here we expect to find no glorious tinted blossoms, for we associ-

ate them with the bright sunshine, but to our overheated orbs the purity of the Indian pipe is as refreshing as the welcome draught from the bubbling spring is to our parched throats.

This delicate white, practically leafless plant, when new born hangs its drooping head, like a shy maiden, but as maturity approaches the bowed head is uplifted and the seed is ripened.

The plant is parasitic, deriving its



A GOOD STUDY OF INDIAN PIPE.

nourishment from decaying vegetation, and rapidly turns black when plucked. Occasionally a cluster of plants is found which is slightly salmon or pink.

The flower is solitary and terminal, composed of four white sepals and from four to six scale-like petals. The pistil is encircled by from ten to twelve stamens.

The leaves are replaced by small scaly bracts. The flowering period is from June to August and the plant is to be found in nearly every state in our country.

The Individual Behind the Lens.

BY GEO. W. KELLOGG, ROCHESTER, N. Y.

THE GUIDE TO NATURE announces that it desires better photographs; it advises the reader to put a better lens on his camera, to send specimens of his results and to tell how his results are obtained, and to give talks on lenses. This magazine is in danger of getting into the rut where the photographic magazines are, and where the most of writers on photography who get in print are: laying too much stress upon the tools; and with the exception of a few favorites, of course, considering the individual who uses the tool as of secondary importance.

Good tools, alone, do not make good workmen. There are some individuals who produce photographic monstrosities, only, with the best equipments on earth, and who are excelled by others with the crudest of home-made outfits. One of the former class, who has been advertised as an expert; who has all the intricacies of photography at his tongue's end, theoretically; who is a habitual bulb-squeezer depending upon some victim to do the rest and insisting that his victim shall be held responsible for results; but whose average results are inferior to the results obtained by another man whom I know with a cigar-box and pin-hole. The man with the pin-hole did the work, and all of it; the one with the anastigmats was seldom without some blundering idiots to blame for his failures. But, it is probable that not five per cent. of the work that can be done with the first-class lens will be possible with the pin-hole; and the quality of the

pin-hole work will not equal that of the lens work, when both instruments are controlled by skilled operators. The lens is an important tool; but the kind of work which it will do depends on the judgment, the good sense, and the skill of the one who is working with it. Work of good quality can be done with all grades of photographic lenses; the better the lens, the greater the scope of work that will be possible with it. "Get as good a lens as is possible" is good advice; but "as good" does not, in this instance, imply "*as expensive*." It may be interpreted single achromatic, rectilinear, anastigmat; all depending upon the inclination and purchasing ability of the buyer. Worked at their full apertures, anastigmats, as a rule, are much faster than the rapid rectilinear and, under some conditions, they cut sharper to the corners of the plates for which they are listed; and the most, if not all, when they are stopped down will cut plates two sizes larger, and become, thereby, good substitutes for wide angle lenses. The rectilinear is faster than the single and does not render straight lines slightly curved; as the single lens does. For speed and definition the single lens is an advance far beyond the pin-hole. The quality is of greater importance than the make of lens. What is engraved on the mount does not do the work. The lens, alone, will not work: all depends upon the brains and the skill back of the lens.

There are other lens truths which lens makers do not tell; which editors do not publish; which scribes do not write. Why? Yet the knowledge of these truths will be of more practical value to lens users and prospective lens purchasers than the prattle about mathematical formulæ, astigmatism, aberrations, visual and chemical focus, flatness of field, depth, and a lot of the other lens talk that is hashed and re-hashed so much that some people seem to have it committed to memory, and appear to believe that it is all there is about lenses. I am looking for the editor who has the courage to publish these untold truths; or for the one who shall successfully contradict the statement made. It will be like the beginning of another era of miracles if either shall be found.

No lens expert, no editor, nor any

other person, in the instances where the information has not been furnished, can determine by a critical examination of the illustrations which have appeared in *THE GUIDE TO NATURE*, or that shall appear in it, what kind of lens, the focal length of the lens, the price of the lens (\$5.00 or \$50.00), which was used in the making of the average respective original negatives; the exceptions to this rule being some instances when an anastigmat has been used wide open, and when very rapid movement has been successfully arrested; but in the case of the latter it is not always safe to stake too much on the correctness of the guess, unless a confidential "tip" has been received by the guesser from the man who was behind the lens.

The editor of *THE GUIDE TO NATURE* is to be congratulated because he is the user of lenses of a higher grade than the average of his subscribers and readers can hope to afford. It is his privilege to sing praises to his lenses and the

makers thereof as often and as long as he desires. If he feels it to be a duty, let him do that duty well but let him not forget that it is also his duty, if he proposes to teach photography, to show the less fortunate of his pupils the way to the best results within the limitations of their respective equipments, and without discriminating between the poorest who can afford only a dollar outfit, and the most well-to-do to whom hundreds of dollars will not be an obstacle to separate them from the equipment they desire. Let the Editor show his readers how to become better workmen with such tools as are within their purchasing power: then, if the readers profit as they ought by the instruction received, they will be in positions to supply the better pictures that are wanted. Twenty-five per cent. may be in the lens; seventy-five per cent., and possibly more, of the credit or the demerit is owing to the worker who was behind the lens.



PHOTOGRAPHIC STUDY OF AN OLD TREE.

By Frank P. Jewett, Orange, New Jersey.



'Tis not in mortals to COMMAND success, but we'll do more, Sempronius, we'll DESERVE IT.—Addison: Cato.

For the Amateur.

Those who wish to cultivate orchids may obtain vigorous specimens of several kinds of *Cattleya* already potted and established for about \$2.50 each; or in the spring and summer, when shipments of freshly gathered plants arrive, they may be bought for \$1.50 to \$2.50 each, or a box containing about forty for \$65.00 to \$75.00. The latter are not potted but are sold just as they are when received.

They will grow well in any ordinary greenhouse, except in one with a northern aspect. The glass should be lightly shaded during the spring and summer, while the atmosphere and plants should be kept moderately moist and amply ventilated at all proper times. A sufficiently high temperature at night is from sixty to sixty-five degrees, Fahrenheit, and for the day a correspondingly higher temperature.

For potting, use soft, fibrous peat with a sprinkling of live sphagnum moss and a few pieces of charcoal, first draining the pots or pans with potsherds. The peat or compost must be pressed around the plants so that they may be perfectly firm, for no orchid will thrive if left loose or rickety in the pot. If these orchids are treated as well as other flowering plants generally cultivated the beauty of their magnificent flowers will recompense the owner for all his care and attention, while the plants themselves will last for many years.

An Attractive Catalogue of Lenses.

The Bausch & Lomb Optical Company has recently issued a beautifully illustrated and well printed catalogue of lenses. Their Tessars and Protars

are a joy forever to the lovers of good lenses. There are some of us who really love the lens and would get as good as possible even if it wouldn't take a better photograph than a cheaper grade. Seems rather "tough" to always be appreciated for what we do, and not intrinsically for ourselves. Of course, I am merely speaking for the lens!

But combining doing and being, in excellent qualities, well what more can you ask?

Yes, one thing—for the catalogue.

These Kind Words are Appreciated.

I enjoy the magazine very much.—*H. M. Maling, Portland, Maine.*

I really think the magazine is wonderful.—*Earl Lynd Johnston, Evans, Colorado.*

I enjoy the magazine and find it helpful in my nature work.—*Mrs. W. K. Harrington, Andover, New Jersey.*

I take great pleasure in reading the interesting and valuable magazine which you are editing.—*J. R. Quirk, Managing Editor "Popular Mechanics," Chicago, Ill.*

I had all my magazines from April, 1908, at my school, which burned in January, so I lost all of them. I prized them highly and used them in my work. My pupils liked to read them and hunted for specimens of things described. The one copy in which galls were described gave us some excellent study and the pupils found plenty of specimens which we used.—*Ellen Moorhouse, Albion, Indiana.*



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RECREATION ♣ Vol. 3 SEPTEMBER 1910 No. 5 ♣ EDUCATION

The Guide to Nature

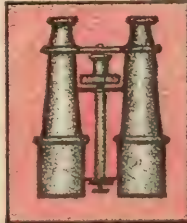
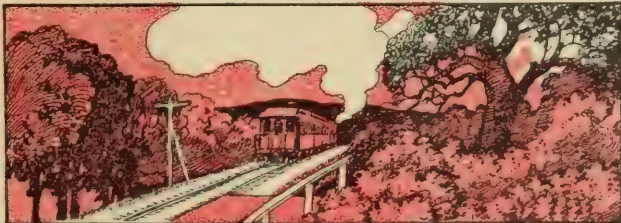
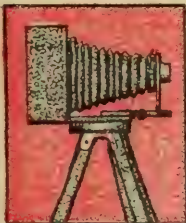
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EDWARD F. BIGELOW, Managing Editor



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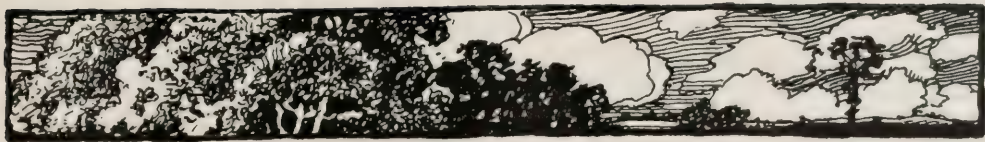
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That life should appear commonplace to any man is evidence that he has invested it with the coarse habit of his thinking. Life is beautiful to whomsoever will think beautiful thoughts. There are no *common* people but they who think commonly and without imagination or beauty. Such are dull enough.—*Stanton Davis Kirkham in "The Ministry of Beauty."*

Arc adia

As with the year, so with man. As he grows older his thoughts reach out to farther horizons, and the love which once burned in a single, central fire now broadens into a flame that would gladly envelop the whole world. He outgrows much, and into what remains of the youth behind him he reads far higher meanings as he advances toward the youth that lies before him. He loved a flower once—now he grows into conscious relation with the immeasurable truth, which is taught nowhere else so clearly as in a garden, that all he has had, all he has desired, of any good is his. Not to touch, perhaps, or to see, but to remember and to wait for, secure in the faith that the Paradise which lies just beyond Calvary needs every leaf and every blossom that ever cheered the longing soul on its pilgrimage thither.—*Sara Andrew Shafer in "A White Paper Garden."*





"MERRIDROOKE FARM" IS WELL NAMED. A MERRY BROOK CHAPPY BECAUSE IT IS ALMOST A LITTLE RIVER) LAUGHS AND SINGS ALL THE WAY DOWN A PICTURESQUE RAVINE.

A study on a cold, midwinter day by Edward F. Bigelow with a Color lens.

GOING TO BED IN AN ARCADIAN FARMHOUSE

I know the beds of Eastern princes, and the luxurious couches of Occidental plutocrats, but under the rafters of a farmhouse, where the mud wasp's nest answers for a Rembrandt and the cob-web takes the place of a Murillo, there is a feather bed into which one softly sinks until his every inch is soothed and fitted, and settling down and farther down into sweet unconsciousness, while the screech owl is calling from the moonlit oak and frost is falling upon the asters. Stocks may fluctuate and panic seize the town, but there is one man who is in peace.—Robert T. Morris in "*Hopkins's Pond and Other Sketches*."

THE GUIDE TO NATURE

EDUCATION AND RECREATION

VOL. III

SEPTEMBER 1910

No. 5



The Nature Work and Recreation of a Surgeon

By EDWARD F. BIGELOW, Arcadia: Sound Beach, Connecticut



ROBERT Tuttle Morris, M. D., well known as a surgeon and a professor in the New York Post Graduate Medical College, was a country boy—born and reared among the hills and streams of Seymour, Connecticut. He is known to the medical profession as a writer of special books and monographic reports, and to nature lovers as the author of a charming portrayal of his boyhood, entitled "*Hopkins's Pond and other Sketches*." That book was reviewed, with heart touching quotations from it, on page 87 of *THE GUIDE TO NATURE* for June, 1910. Here, as in his surgical works, he evidently had in mind, though almost unconsciously so, the members of his own profession, as well as other profes-

sional men, for he writes in the "Preface":

"Then again there was a feeling that the pappus of the pen might float a tiny bit of germ to some barren office desk, where it would spring into fresh memories for some lover of richer fields, who was chained to the desk."

In appearance, thought, and work, he is conspicuously typical of the medical profession. One would anywhere pick him out as a composite of doctors bred and trained true to the type.

I have said that he "was" a country boy in Seymour. That statement needs modifying, if it conveys the impression that boyhood has ever been discontinued. He still goes to nature—most of the time bareheaded, and not infrequently, in the old swimming hole, bare in other respects. He attracts



"THEY COME FROM THE CITY TO ENCAMP ON HIS GROUNDS."

These two young naturalists, Messrs. Richard N. Pierson and Paul G. Howes, have a camp every year in the woods.

boys because he is still one of them. They come from the city to encamp on his grounds, and any one of them will confidentially inform you that, "You ought to know Dr. Morris; he is

just one of us." His sympathy for boys and for their spontaneous, enthusiastic interest in nature is unbounded. Listen to this from his book:

"Then there are the boys to be con-



THE CAMP BY THE RIVER.

Mr. Freer and Mr. Roosevelt, Jr., prefer this to the house.

sidered. How well do I remember the joyous days of childhood when most of my hours were spent in the woods, and when the birds, and animals, and fishes, and plants seemed to be the only things in the whole world worthy of any consideration."

How few persons that write for boys, or about them, do it with them! It is mostly in condescension, "Now, you dear little boy, when I was your age," etc., etc., *ad nauseam*.

Not so, however, with Dr. Morris. He is always one of them, and when you read "Sucker Days," you can see him in the stream splashing about among them, and if you were to imagine the chapter written then and

boy to be different from the voices of the robins and the wood-thrushes."

* * *

Wasn't it a beauty! We picked it up and let it flounce out of our hands a dozen times before it became submissive.

"How will you trade him for mine?" asked Tom Allen. 'Oh, but that one of yours ain't anywheres near so big as this one,' said the boy. 'No,' said Tom, 'but them big ones is all innards and no meat. Just heft mine onct. There's twicet as much meat on him.'

* * *

"The boy laboriously wrote on a



DR. ROBERT T. MORRIS'S "HOME NEAR TO NATURE."

An old farmhouse practically unchanged since long before the Revolution.

there with pad and pencil, you would know that both pad and pencil got wet.

Here are some quotations:

"Began to poke under rocks in all of the holes, to see if the big sucker was still in that part of the stream. All at once it rushed out in sight, and the shouts of the boy brought the others on a run as fast as they could come.

" 'Right under that stone he is, fellers, and an old whopper, too, by golly,' said he. 'I'm going to hold on to him this time, you bet.' Just then came the sound of the school bell across the fields. It is called a musical sound, but somehow or another it seems to a

piece of paper torn from the soiled fly-leaf of his speller, 'lets Givum too unkelbent,' and stealthily passed the note over to Tom Allen's desk. A quick nod of Tom's head from behind his joggerphy' showed that an enterprising boy who could defraud his companion because that was one of the laws of trade, was nevertheless unable to resist the impulse to give his plunder to Uncle Bennett."

* * *

"Alas for the trustfulness of youth! The old gray cat had found the fish and had dragged them off to some other hiding place."

I have referred in so great an extent to Dr. Morris's youthful nature and sympathies, because I think he is best understood when regarded at heart as an enthusiastic boy of the country, and in brain and body as a professional man of the city. These two characteristics he successfully combines or, perhaps he applies first one and then the other in his favorite pursuit of nut raising. He shows you the trees and

stream runs through the place. Here, too, is a fine old forest, with deer and other four-footed creatures, and birds in abundance, and all remarkably tame, although the western boundary is only about seventeen miles from the city limits of New York.

Some two hundred acres of open land are devoted to his hobby of nut culture. Specimens of nut-bearing trees capable of cultivation in this latitude,



DR. MORRIS DICTATING CORRESPONDENCE TO HIS SECRETARY, MR. FREER, ON THE OLD FARMHOUSE PORCH.

I am sorry for the man who never stops to think how well off he is with his every-day clothes on.—
Robert T. Morris, M. D., in "Hopkins's Pond and Other Sketches."

the nuts with all the enthusiasm of a boy ready to fill a bag with the spoils of a raid, but he studies the subject with all the skill and diligence of the trained scientist.

"Merribrooke" is an ideal location for such experiments. It consists of about four hundred and thirty acres in the Mianus River Valley, partly in Stamford but chiefly in Greenwich. For a mile a wild and rocky trout-

are being collected for experiments in cultivating, hybridizing and grafting.

At Cornell University he has established for educational purposes a collection of the edible nuts of the world. His reason for choosing Cornell University for the purpose is because he is one of the Trustees of that institution and much interested in the development of its agricultural department, believing, with President Brown of the



VIEW FROM DR. MORRIS'S PORCH AT MERRIBROOKE.
Showing locust trees on entrance road.

New York Central Railroad, that agriculture is to become one of the greatest of the professions. It would per-

haps have been more natural for him to make scientific contributions to his native state of Connecticut, of which



ENTRANCE GATE ON WESTOVER ROAD.

The superintendent, Mr. Warren Roosevelt, is driving. He is nearly eighty years of age, but said to be one of the youngest men on the place.

his father was Governor, while President Hadley of Yale is a brother-in-law; but Cornell University seemed, in new agricultural movements to be taking the lead of all similar colleges in the country, and the collection went there to aid in that commendable result.

As I have tramped over the fields with him, and noted his scientific experiments and, perhaps with greater relish, observed his boyish enthusiasm

especially warm I can agree that it is fitting! And then he continued, in further explanation:

"It is my idea that one can find recreation in constructive work of value to ones self and to the public, just as well as one can find it in golf or yachting, although I am fond of all outdoor sports and have done considerable exploring and big game hunting."

What phases of the work or recreation do you enjoy the most?



ALMONDS BEAR HEAVILY IN CONNECTICUT.

and his untiring energy, I have more than once inquired, "How is it, Doctor, that you are always on 'the go?' I should think you would want to rest when you get out here."

His reply is characteristic:

"An aged clergyman, a friend, once visited Merribrooke when I had a superintendent who did not enjoy work. After walking about the beautiful place for a while he said to the superintendent, 'So here is where the Doctor comes to rest,' to which the superintendent replied, 'Huh! He is the d—dest restor you ever saw.'"

The Doctor evidently enjoyed this characterization, and as the day was

"One of the most interesting features of the work is hybridizing or crossing different kinds of nut trees. For instance, one can cross hickories which have individual good qualities, as thin shell, high quality, large size or good cleavage in cracking. Out of the lot of hybrids one will then secure some which are ideal, and any ideal hickory is then propagated by grafting it, just as Baldwin apples or Bartlett pears are propagated, so that whole orchards of a desirable kind of hickory can be raised.

"There is fascinating speculation in crossing widely different kinds of trees like the walnuts and hickories.

According to Mendel's law a part of the progeny will resemble the parents, and a part will be entirely new, different from anything that has ever been seen before. For hybridizing experiments I have twenty-six kinds of chestnuts alone, from different parts of the world, but my favorite family consists of the hickories. There are many kinds of walnuts, hazels, beeches and other nut trees under experimental cultivation."

As we stood on the ledge overlooking the river, the Doctor called my attention to a *Cypripedium* in seed. "So," I remarked, "you do take interest in other things besides nut-bearing trees."

"Yes," he replied. "I have always been an enthusiastic student of natural history and have a fair running knowledge of botany, geology and general zoology, so that all of the natural features of the place have a special interest. I enjoy making observations of the wild animals and birds of the woods, the fishes of the stream, and the insects that make trouble or that are beneficial. A snake or a spider is never killed just because it is a snake or a spider."

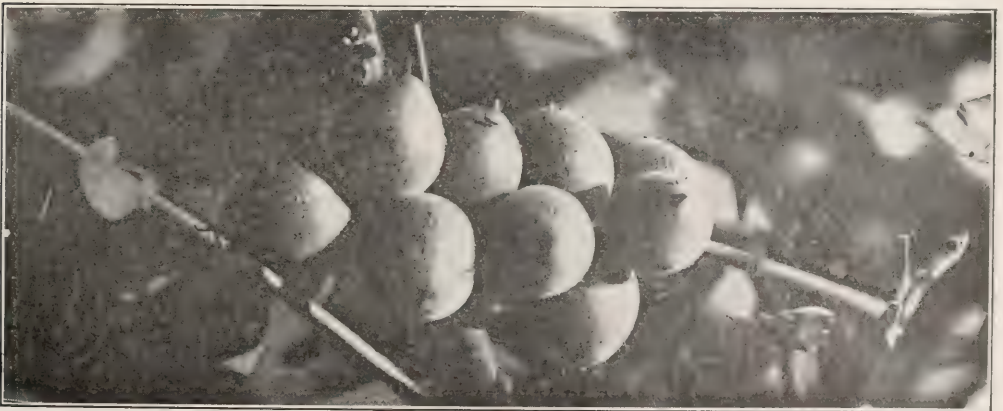
Emerging from the woods, we paused at the spring to get a cupful of the clear water, so cold that it seemed as if iced, and then we followed the narrow path that like a scout-trail lead us over the hill. As we went I thought



A JAPANESE WALNUT.

The tree, seven years old, is over twenty feet high, with tropical leaves a yard long. Observe the mosquito netting bag a little to the lower left of the center.

to profit by his medical knowledge, and inquired, "Are you and I naturalists because the love of nature is 'in our blood,' a remnant of our savage and



A BUNCH OF SURPRISES WITHIN THE BAG.

Siebold walnut hybridized with pecan hickory. Each nut will grow some new kind of tree never seen before.



SOME FREAKS ANTICIPATED.

Chinkapins hybridized with Chinese chestnut. Each one of the nuts will make a different kind of a new tree.

remote ancestors who went on the chase?"

"Yes. It is always the man's work to range the environment, while the woman has the quieter home duties.

Mrs. Morris's tastes are chiefly literary, but I have a little daughter who shares my love of animals, and her recent picture in "St. Nicholas," surrounded by doves at "St. Mark's in Venice, is char-



A CHINESE CHESTNUT OF BEAUTIFUL SPREADING HABIT.

acteristic. I always say that it is the man's wife who furnishes the civilized part of the family while he is engaged in the primal pursuits of agriculture and hunting."

Upon my remarking that it must cost much to maintain such a place, he said: "It costs a few thousand dollars per year, but the money spent on yachting would be lost. The recreation obtained from nut culture at Merribrooke, in addition to its scientific value for the public, should give me a large income from the two hundred acres of orchards when I shall be retiring from professional work, so that I look forward to old age with the same zest that the youth looks forward to manhood. It seems to me that every man should aim toward some such goal for the days when his chief activities must cease.

"It is a wrong idea, however, that many years are required for nut trees to come into bearing. Valuable sorts when grafted upon old bearing trees as stocks will frequently bear heavily by the second year after grafting, and many seedling trees from European or Oriental countries, where they have been long in cultivation, begin to bear at a very early age.



ENGLISH WALNUTS GROW THRIFTILY.



A NURSERY ROW OF PECANS.

The hardy little trees from Indiana are cultivated in the nursery for two years before being transplanted.

"The nut market is never fully supplied, and many of the best kinds never get so far as even the New York market. Last year this country imported more than twelve million dollars' worth of nuts and nut products, and we should really have exported a very much larger quantity. The time is near at hand when thousands of deserted acres in Connecticut will bring farmers the princely incomes now obtained by the pecan growers of the south, and by the Pacific coast orchardists with their walnuts and almonds."

Even if Dr. Morris's experiments



AN ANCIENT BEECH TREE.

The tree overhangs a rocky rapid, and there is a raccoon hole part way up the trunk.



THE SWIMMING POOL NEAR THE HOUSE.

Big trout of two or three kinds lurk in the pool.

should never yield pecuniary returns much beyond expenditures he has set an example valuable beyond dollars—in rest, through work, in the nearness to nature, and in the altruistic occupation of planting trees for future generations.

These experiments have attracted the attention of many people prominent in science, literature and statesmanship. Merribrooke has been a resort for many famous men. One is

of Colloredo-Mannsfeld was so much interested in Dr. Morris's work that, after his return to Austria, he laid out a new avenue through one of his towns (Opocno), bordered the street with hickories, and named it "Morris Avenue." Hundreds of years hence people may wonder what warrior it was whose name is borne by the avenue, to learn perhaps that it was only an unassuming cultivator of nut-



THE ISLAND IN THE RIVER AT THE FOOT OF THE GARDEN.

likely to meet Irving Bacheller, or Ernest Thompson-Seton, or Dr. William J. Long in the bridle paths. Mr. Cleveland enjoyed fishing in the stream, and valued the quiet surroundings of the farmhouse, at times when he was pondering over grave questions of state. It is said that a dinner of pork and beans and pumpkin pie was given to a Japanese Admiral who was weary of elaborate entertainment in the city, and who personally instructed the superintendent's wife in the proper cooking of rice. The Prince

During his trips abroad in attendance on the meetings of various medical societies, Dr. Morris also visits the horticultural exhibitions, and brings back ideas quite as valuable as those that relate more nearly to his professional work. His trips have thus a double interest. He is in correspondence with hundreds of scientific men in all parts of the world, and in this way is enabled to obtain nut-trees and information about them which is not commonly known to botanists nor to horticulturists.



A STUDY OF WHITE BIRCH AT THE EDGE OF THE TWENTY-SIX ACRE LOT.
This lot is set out with Korean chestnuts. The edges of the field are left to nature. Deer come down to the field every evening to get away from the flies and mosquitoes and to drink in the Mianus which forms its eastern boundary.



THE DAM SITE IN THE CONSTRUCTION OF THE LAKE.

Separated by a high ridge of granite on Dr. Morris's estate are two valleys about half a mile apart. Through the eastern valley rushes the rocky Mianus River. The western valley begins at a swamp surrounded by cliffs, and where its smaller stream leaves the swamp at a narrow defile between steep ledges a dam has just been constructed for transforming the swamp into a lake of about twelve acres, to be devoted to experimental culture of nut-bearing aquatic plants like *Trapa* and *Nelumbo*, which furnish food for so many people of the Orient. After leaving Merribrooke the stream passes on

to make the lake for Mr. Seton at Wyndygoul.

* * * * *

THREE PHOTOGRAPHS BY MR. PIERSON.

The two photographs on the previous page, and the upper one (View from Porch) on page 189, were taken by Mr. Richard N. Pierson, of Stamford. The others are by the writer of this article. When Mr. Pierson's photograph of the site of the new lake was shown to Dr. Morris, he remarked:

"It is just completed, and this is the last time this land will ever be seen. The lake is to be devoted to nut-bearing aquatic plants like *Trapa* and *Nelumbium*."



When we plant a tree, we are doing what we can to make our planet a more wholesome and happier dwelling-place for those who come after us, if not for ourselves.—*Oliver Wendell Holmes.*





The Lobster and Its Propagation.

BY WILBUR F. SMITH, GAME WARDEN,
SOUTH NORWALK, CONN.

Whoever goes a fishing will tell you that there is something other than the fish caught that constitutes the "lure" which calls men to the brook winding its way through the cool woods and the sunny meadow, or to the broad expanse of salt water that hides and protects its finny inhabitants, and I think that there is a like "lure" and a fascination, calling to the men "who go down to the sea" to fish for lobsters, for their work is hard, full of exposure, and beset with loss of tackle and traps.

Time was when the lobster was abundant from Nova Scotia to the Delaware capes, and before man, its greatest enemy came into the field there is abundant evidence to show that the

lobster was a favored race, for we read that in the fifties, off the central coast of Maine, it was not uncommon for boys to pull large lobsters from under the boulders along the sea shore.

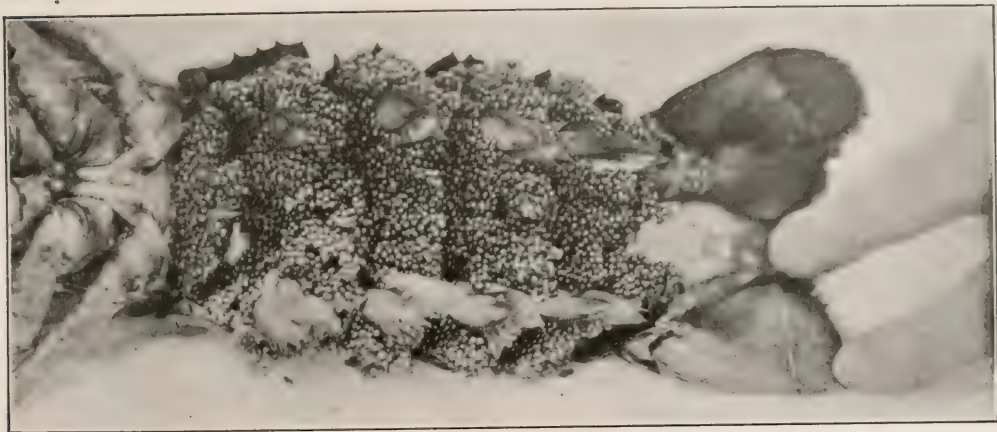
Now lobsters have almost disappeared from some of the places where they were once so abundant, and are scarce in others, and it is safe to say that there is not one lobster in the sea today where there was ten, fifty years ago. Lobsters reproduce by eggs which are "taken on" during the summer months and carried attached to the swimming feet on the under side of the abdomen for about ten months, are of a greenish black color at first, changing to yellow when ready to hatch, at which time the embryo lobster may be seen in the egg, which after hatching floats about with the tide for about two weeks, by which time they have moulted four times and now sink to the bottom and conceal themselves in the sand and under stones, and if all goes well in about five years they have attained a length of nine inches, the smallest size that they may be taken in Connecticut.

The lobster grows by casting its shell which at stated times splits down the center of the body shell and across the middle joint, and the lobster crawls out limp, soft and helpless. The growth now takes place and in a few days, the lobster again has a hard shell and has grown about fifteen per cent. of its former length, thus a nine inch lobster before moulting will be ten and one-half inches long after moulting.

The movement of lobsters is from deep to shallow water during the time



A LOBSTER, SHOWING THE LOCATION OF
THE EGGS.



A NEARER VIEW OF THE LOBSTER'S EGGS.
From a specimen caught off the shore at Sound Beach.

that the eggs are hatching—June and July—though record has it that a lobster liberated at Woods' Hole, Mass., was caught off the New Jersey coast.

Fishing is carried on by means of the "lobster trap," a rectangular slat box from three and a half to four feet long and from fourteen to sixteen inches wide, in the end of which is a knitted funnel of twine for the lobster to enter, and on a sharpened stick, in the center is impaled a fish for bait, while stones in the bottom sink it to the rocks and ledges where the lobster lives, and a long rope with a buoy attached guides the fisherman back to his traps.

Various reasons are given for the alarming decrease in their numbers, two of which stand out boldly and apply equally to the fisherman and the general public—namely, the practice of scraping off the eggs before they are ready to hatch, that the mother lobster may be sold and thus destroying the increase, and the taking and selling of "shorts," or lobsters under the legal length, thus destroying them before they even get a chance to reproduce, both of which practices must stop, else the lobster will in time be known only to the rich and the epicure.



Inherited Habits of Young Animals.

BY DR. R. W. SHUFELDT, WASHINGTON,
D. C.

Ever since the publication of some of Darwin's great works pertaining to the study and history of man, the literature of this subject has been continually and rapidly on the increase. This gratifying fact is not only significant but important and encouraging. Most of the authors in this field have devoted their energies to the study of the adult, paying but little attention to the young of our kind. Still this line of research has by no means been altogether neglected, and a great many books are extant on the subject, until now, indeed, the list is a very long and formidable one. One has to but scan the bibliography of child-study, as so thoroughly collected together for us by Arthur MacDonald, to appreciate the truth of this statement. It is to be found in his admirable volume, "Man and Abnormal Man." Then Professor Alexander F. Chamberlain of Clark University, has in his excellent work, "The Child," given us another very helpful list of books upon similar researches.

All of this is of extreme importance, for it is largely upon a full knowledge of children in all respects, that we are enabled to make predictions as to what the civilizations of future nations are likely to be.

With respect to animals below man



FIG. 1—YOUNG OF PUFF ADDER
(*H. Platyrhinus*).
Photographed from life by Dr. Shufeldt.

much likewise has been done, though this enormous field for inquiry and investigation has, as yet, hardly been touched upon at all. Collected and digested facts obtained through such studies cannot fail to greatly further the biological science, and are very important in many particulars.

It occurs to me, that this is a most interesting field for our young nature workers to engage in, and the material for it, at nearly all times of the year, is at hand, and, for one, I hope to see in future issues of our worthy magazine, *THE GUIDE TO NATURE* contributions devoted to the results of such observations. Studies can be made with respect to all living forms of animals, whether vertebrate or invertebrate, and can be carried from the period of hatching or birth up until such time as the individual in any particular instance is fully adult.

To illustrate my meaning by a single example, for space will not admit of more, I would say, that recently I have been studying some adult and young specimens of our more common American snakes. The majority of these have been supplied me through the courtesy of Mr. Edward S. Schmid, the genial proprietor of the well known animal emporium at 712 Twelfth Street, Washington, D. C.

Now doubtless many of the readers of *THE GUIDE TO NATURE* are more

or less familiar with the common hog-nosed snake of the Eastern States, also known as the puff adder, from its habit of swelling up and flattening out its neck and fore part of its body when angered or irritated in any manner. *Heterodon platyrhinus* is the name by which this harmless and interesting snake is known to science, and a few months ago Mr. Schmid loaned me, for the purpose, of studying and photographing it, a most beautiful, living specimen of the young of this species (Fig. 1). It was in fine condition and color, and by the use of a large vertical camera at my study, I succeeded in obtaining some excellent negatives of it. One of these is shown in the cut accompanying this article, and is of the exact size of the specimen. It was a very handsome little snake, of a pale, whitish, cream color, elegantly spotted and marked with patches of dark brown and tan as shown in the cut.

Those who are familiar with the habits of the adult puff adder, are aware,



FIG. 2—DR. R. W. SHUFELDT EXAMINING A SNAKE IN HIS STUDY.

that there are three or four for which this much dreaded ophidian is famous. In the first place when we meet with it in nature or elsewhere and attempt to pick it up, or even get too close to his snakeship, it has a way of throwing itself in a sort of a capital letter S shape, then flattening itself out, especially its cephalic third, and giving vent to a loud and rather ominous hiss or forcible expiration. At the same time it will tightly curl up the extreme end of its tail—in fact, curl and uncurl it in a nervous sort of a way. Finally, if the snake is found by one who knows it, knows that it is a harmless species, and picks it up and handles it at all roughly, or in a too familiar manner, it will feign death completely, and cannot, even when severely tortured, be made to show any sign of life again.

The snout of this snake is sharp and turned upward, and the appendage assists it in its burrowing propensities. Even when fully adult, it varies greatly in the matter of color, though, as a rule, it is generally of a yellowish brown with irregular cross-bands of a darker tint or even deep black; other specimens are brightly colored with red and yellow; finally, there is a wholly black variety, which is an entirely different looking snake (H. p. Niger.) It is impossible to convince ignorant people of the harmless nature of this handsome and interesting reptile, which they have christened with such suspicious names as the "blowing viper," the "spreading adder" and the "flat-headed adder". Whether the young of the black variety are black when hatched, I do not know, as I have never had the opportunity to ascertain.

What interested me was the fact that the young one in my possession possessed in a marked degree each and all of the habits above referred to as pertaining to the adult snake,—even to the matter of feigning death. The markings, however, were quite different and far more beautiful in some respects. They probably simulate those of the ancestral form of this species, and the two elongated spots on the fore part of the neck next to the head are significant.

When I first glanced at this young snake I thought it was a young "copperhead," and so declined to pick it up, but the moment I saw it assume the attitude it exhibits in the cut, I took it in my hand without hesitation. Not only that, but it satisfied me at once as to the species it was, which is something of no little importance to a naturalist.

So much for our example, or as far as I can carry it at this time, but it must be remembered, that this is by no means all the subject has for us. The study, close study, of the habits of the young, and even other characters in regard to them, as compared with the behavior and corresponding characters in the adults of the species, will throw a powerful light on biological evolution, on phylogeny, on ontogeny, on the history of the species in time, and much else of the utmost importance to the science.

The Gift of Mrs. Russell Sage.

Mrs. Russell Sage has given to the National Association of Audubon Societies \$500 to start a special fund to be used for the protection of the robin. A few days later she also contributed \$5,000 to be used in pushing the work of the Association in the Southern states, and at the same time expressed her deep concern that the robin, which is legally regarded as a game bird in some of the states, should be given adequate protection. As Mrs. Sage further states that she will provide \$5,000 annually for the next two years, it means that the Association will be enabled to institute and conduct a vigorous campaign for bird-protection over a large territory, heretofore but scantily reached.

By these magnificent contributions to the work of saving the wild birds of America, Mrs. Sage has won the gratitude of untold thousands of bird and nature lovers throughout the country.—T. G. P. in "Bird Lore."

Our American life still needs, beyond all things else, the more habitual cultivation of out-door habits.—*Thomas Wentworth Higginson.*



Evening Sky Map for September.

BY PROF. ALFRED MITCHELL OF COLUMBIA UNIVERSITY.

Two important congresses of astronomers have just taken place which are of interest to all who watch the skies. The first was a meeting of the Astronomical and Astrophysical Society of America which met at Harvard University from August 17 to 19. Here was presented the results of the latest researches concerning the celestial kingdom, the motion of the stars, the activity of the sun, the distribution of stars in space and the evolution of solar systems. Chief among the papers were those bearing on Halley's Comet. The general consensus of opinion was that the tail of the comet which appeared in the east, when astronomers expected it in the west, and whose appearance caused so much perplexity at the time, was not the main tail, but a smaller detached portion. The photographic history of comets has shown many such fragments which shoot off from the main tail for no reason that is as yet apparent. Professor Barnard's magnificent picture showed a remarkable secondary tail in the Brook's Comet of 1893 and similar features in the Morehouse Comet of 1908. Undoubtedly, on the night of May 19, Halley's Comet had an existence somewhat similar to that photographed by the Bruce telescope on the evening of June 6.

The meeting at Harvard was rendered specially interesting by the presence of a score of European astronomers who took part in these meetings, and who then journeyed to California to attend the second and more important congress, that of the Solar Union which met at the Carnegie Solar Observatory at Mt. Wilson, near Pasa-

dena. This latter conference runs over into the first week in September. The problems discussed there relate only to the sun, the most important body in the universe to us. Magnificent work has been done at the Mt. Wilson Observatory by Professor Hale and his corps of astronomers, and it is undoubtedly the greatest observatory in the whole world devoted to solar research.

EQUINOCTIAL STORMS.

The month of September brings in its train the first touch of cool weather and frost, and the so-called "equinoctial storms." The sun "crosses the line" on September 23, the autumnal equinox, and summer is astronomically at an end. The seasonal change of weather generally brings about that time a violent storm, with its attendant disaster to shipping. As similar storms occur in March, while the sun is near the spring equinox, there has naturally, down through the centuries, grown up the impression that the sun's crossing the equator is directly responsible for these equinoctial storms. Nothing more absurd could be imagined. The equator in the sky is as imaginary a circle as the equator on the earth. In fact, the celestial equator is simply the plane of terrestrial circle, produced out to the heavenly sphere. One travelling at sea never knows when he is crossing the equator unless the navigator makes astronomical observations for the purpose, and in a similar way the time that the sun is on the equator can be found out only as the result of observation and calculation.

Weather is not made on the spot, but is the result of influences spreading over large areas. Changes in the moon and spots on the sun have been

the phenomena most generally blamed for changes in the weather—but as yet without scientific success. To explain storms by the sun's crossing an imaginary line is a still farther cry. Autumn begins on September 23, 5.31 P. M., Eastern Standard time.

CONSTELLATIONS.

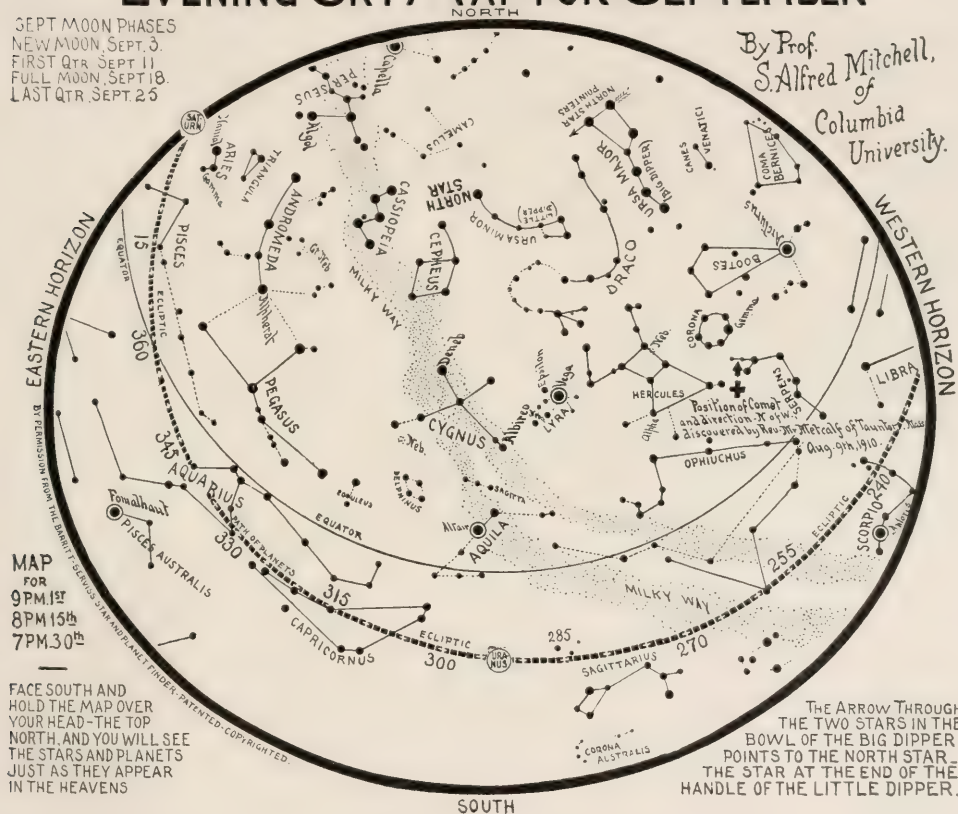
The star which is found almost overhead in the early part of the evening is the first magnitude star Vega, the chief

stars of this constellation show interesting results. The second star known as Beta Lyra has a most unusual spectrum consisting of dark and light lines which change and alter in a mysterious fashion. The dark lines of any spectrum are caused by absorption of light by the star's atmosphere, while bright lines show the presence of a gas-giving light of its own. In addition, this star has a light which varies in amount, being brighter at one time than another. Anyone who watches

EVENING SKY MAP FOR SEPTEMBER

SEPT MOON PHASES
NEW MOON, SEPT. 3.
FIRST QTR, SEPT. 11.
FULL MOON, SEPT. 18.
LAST QTR, SEPT. 25.

By Prof.
S. Alfred Mitchell,
of
Columbia
University.



one in the constellation of the Lyra. At New York City, this star comes within two degrees of the zenith. This distant sun, many times more brilliant than the centre of our system, has not progressed so far in the scale of development as our sun, as shown by its bluish white color. The spectroscope shows it to be of the "first type," and informs us that its atmosphere consists mainly of hydrogen gas. The spectroscope applied to other

the star closely with the naked eye can detect a change, for the range is over one magnitude, from 3.4 to 4.5. The period of this change is 12.9 days. Beta is a trifle more than six degrees south-east of Vega. Still farther to the south-east is Gamma Lyra, a fine star with which to compare Beta. At times Beta is brighter than Gamma, at times fainter. The writer has discovered Gamma Lyrae to be a "spectroscopic binary," or a star

which appears as a single star in a powerful telescope, but which in reality is a pair of stars, as revealed by the spectroscope. The motion of Gamma in the line of sight is not a constant, but a variable one, indicating two stars revolving in orbits about each other.

Due east of Vega are two smaller stars which form a small equilateral triangle with the bright star each side being about two degrees. The northerly one of this pair is the renowned "double double." This star known to astronomers as Epsilon Lyrae is a test of moderately keen eyesight, for it appears to the naked eye as a double star with components of nearly the same magnitude. In a telescope, and a small one at that, each of the components appears as a double. The spectroscope shows this system to be even more complicated.

One of the most interesting bodies in the whole constellation is the Ring Nebula, of unique appearance in the sky. This may be seen in a five-inch telescope when one knows where to look for it, but it is small. It is found in a line between Beta and Gamma Lyrae and about two-fifths of the distance from the former star. To see it in its glory one looks at a good photograph such as the one obtained by Professor Keeler with the reflector of the Lick Observatory. This negative was obtained only after a long exposure, and even with the two foot mirror is small in size. The photograph is enlarged to show better the detail of the ring, and the small nebulous star in its center.

THE PLANETS IN SEPTEMBER.

During the month the majority of the planets are in unfavorable positions, and are invisible.

Mercury is an evening object at the beginning of the month, but it is low down and difficult to see. It passes the sun on the twenty-fifth of the month. Venus is a morning object moving towards the sun, but it is lost in the sun's rays.

Mars has been an evening star since its opposition a year ago this month. It passes to the other side of the sun on the twenty-seventh and is now invisible.

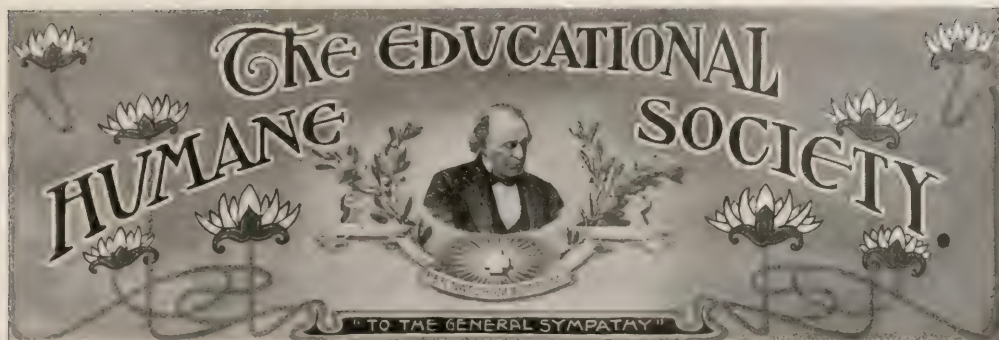
Jupiter has been setting earlier each night in the southwest, and it is visible for but a few minutes after sunset.

Saturn and its rings are, however, in a fine position for observation. It rises about eight o'clock. It is found in the constellation of Aries about halfway between Algenib in the Square of Pegasus and Aldebaran in the Hyades. There are no bright stars near Saturn. The rings show up well in a moderate telescope.

Uranus may be found from its position in the sky map.

A comet was discovered on the morning of Tuesday, August 9, by the Rev. Joel H. Metcalf, of Taunton, Mass. The comet found visually in right ascension 16 hours, 10 minutes, declination plus 15 degrees 20 minutes moving very slowly a little north of west, was of the eighth magnitude with a short faint tail. It is visible in a small telescope and its position at the time of discovery is indicated on the map.





A Chapter of the Agassiz Association (Incorporated 1892 and 1910). "The Law of Love, Not the Love of Law."

A Picturesque Cat Cabin.

The accompanying cut shows one of the buildings of a "summer boarding house for cats" established by a cat lover who could find no comfortable quarters for her own pet when leaving town. The "cabin" is one of several buildings containing runways (not

cages) communicating with yards that are wired top and sides to prevent the inmates from wandering away but large enough to give them ample room to play. There has been an effort to make the place not only agreeable to the cats but pleasing to the eye of the cats' owners, and each year improve-



MISS J. R. CATHCART'S CAT CABIN AT ORADELL, NEW JERSEY.

ments have been made so that the "cattery" is gradually assuming the air of a park. Twenty or thirty yards, fitted with sleeping boxes for summer use only, stretch away from the "cabin" and in front of these is an evergreen plantation culminating in a Japanese garden where the goldfish disport themselves in a miniature lake. A screen of honeysuckle, Virginia creeper and purple clematis screens the dump where all refuse is burned, and wistaria, rambler roses, lilacs and many other blooming plants do their lovely best to make the spot attractive.

The Baby Moose.

BY NELLIE B. PENDERGAST, DULUTH,
MINNESOTA.

These "Babes in the Woods" were left orphans by the killing of their mothers by Indian hunters, and finally came under the care of the game Warden. They were so young they had to be fed milk from a long-nosed bottle, and were as uncertain and wobbly on their long, slender legs as a little calf. They were quite tame and gentle, but sadly missed the protective warmth of the great shaggy-coated mother—especially at night, when they would call her with a low plaintive bleat.



"Dear 'Guide': I take my pen in hand—"
COLLIE PUPPY, MARSHALL BENNETT, JR.
(Owned by Dr. J. C. Edgar, Greenwich, Conn.)
Cut by courtesy of "The Dog Journal."



THE BABY MOOSE IN THE WOODS.

Their disposal was something of a problem, as the game law forbids their sale and they were too young and helpless to be turned out alone in the woods; but finally a farmer was found who had a wooded lot where they could

run at large, who was willing to care for them. They remain the property of the State, and their final disposition is uncertain. Perhaps, if they live and grow, we may see them again when they are larger, provided they are willing to pose for their pictures.



TEMPLE ELEPHANTS IN CEYLON AT THEIR EVENING BATH.

Courtesy of "The Travel Magazine."



Photographed by Miss Sarah Weaver, Plattsburg, New York.
WE SUBMIT THE QUESTION: "AREN'T WE EDUCATIONALLY HUMANE?"



"I LIKE TO BE ON FRIENDLY TERMS WITH THE BEES."

Curious Experience with Bees.

BY W. L. MILLER, DENVER, COL.

The illustration shows an experience I had in hiving a swarm of bees. I had had but little experience with bees, but had learned that, if I caught the queen, I could get the bees where I

wanted them. I walked up from quite a distance down in the field with this swarm, and my wife took my picture. I like to be on friendly terms with the bees, but this was a little greater display of intimacy than I was expecting. —*Gleanings in Bee Culture.*





Curious Place for Wren's Nest.

BY JULIE ADAMS POWELL, STAMFORD, CONN.

It is well known that the wren is a most persistent little bird. If she makes up her mind to build in a certain place it is almost impossible to dislodge her.

Early this spring, a pair of wrens tried to build in the rolled up piazza screen. They carried their sticks and feathers into one end, and three times I was obliged to unroll the screen and shake out the beginnings of a home, before the little brown songsters understood fully that this was not the proper place for them.

A few days later another pair of

wrens, or it may have been the same pair, succeeded in building their nest and laying three eggs in the sleeve of an old garment, which was left hanging on the line. The house boy, without knowing that there was a family residing in the garment, decided one day that it had been there long enough, and so he carried it to the kitchen, carelessly threw it over the back of the chair, when the discovery of nest and eggs was made.

I carefully carried the garment back to the line, and tried to arrange it as the birds had left it, and then took a picture of it. The wrens did not return.

Last summer a pair of these little birds built a nest in a small watering pot which hung in the shed, and therein raised a merry family of youngsters.

One day I saw that a wren's nest had been built in the tin leader, which conducted the water from the roof. A few days later I was glad to note that the nest had been deserted, as we had had a severe shower in the interval. It was well that no eggs had been laid. In the trees of the old apple orchard opposite my home, I discovered six wrens' nests in the small holes of the limbs this season which have not been enlarged by the flickers. One tree was occupied by a wren on one side and by an English sparrow on the other.



A WREN'S NEST IN THE SLEEVE OF AN OLD GARMENT.

The eggs can be seen beneath the shadow of the cloth.

A Pet Burrowing Owl.

BY HATTIE WASHBURN, GOODWIN, S. D.

While driving across the prairie one chill, desolate day late in autumn, I saw a burrowing owl running before my horse and dragging a broken wing. I alighted and drove him into the rank weeds at the roadside where he turned at bay with fiercely glaring eyes. I stooped to pick him up when uttering a succession of sounds not unlike the alarm of a small clock, with a sudden

spring, he firmly implanted his small sharp claws in my wrist.

The bones of the maimed wing were badly shattered and bore unmistakable evidence of the work of some cruel or thoughtless hunter. Without further show of hostility, he allowed me to examine his wound, place the injured member in the most comfortable position and wrap him cosily in the robes at my feet, where he made no attempt to free himself, but fixed upon me an unwinking stare for the remainder of the distance home.

I gave the owl his freedom in the kitchen where he found refuge under a chair, from which stronghold he bade defiance to all further overtures of friendship, until some pieces of fresh meat were offered him. He pounced upon them as though they were living things and devoured them ravenously. I supposed this was owing to extreme hunger but soon learned that it was his habitual manner of receiving meat.

In time his hostility wore off and when the door of his cage was opened he would come out and walk about the room, examining each article with a show of profound wisdom, but never failing to note the slightest movement of each person near him. He never became quite tame but soon learned to know each member of the household, for while he received our caresses with stolid indifference, he never failed to utter screams of defiance when approached by a stranger.

Mice, his favorite food, were swallowed head foremost and he would often rest for several minutes with one partly down, until with renewed strength, he proceeded with his strange meal and stranger method of taking it. When I first saw him swallowing a mouse thus, supposing him to be suffering from strangulation, I seized the mouse by the tail and drew him from the bird's throat. With a scream of rage he pounced upon my offending hand.

When after a most successful mouse hunt we gave him more than he required for one meal, he would eat the head from each remaining member, and stacking them with tails pointing in

one direction, perch immovable upon the pile. Thus he would sit for hours as though he were a specimen in a taxidermist's collection, but if his cage were approached he instantly became alert and warlike and even his most trusted keeper dare not touch him while he guarded this precious store.

He died late in the summer following his capture, without apparent cause, and thus ended the career of one of the strangest and most interesting pets I ever knew.

Our Wrens.

BY NELLIE B. PENDERGAST, DULUTH, MINN.

Some time ago I invested in some Ten-Cent Store millinery—a rather deep-crowned straw hat. Took it home, made a small hole in the side, fastened a strip of thin wood underneath for a front porch, and nailed the hat, wrong side up, to the ceiling of the front piazza, in a corner. The wrens soon discovered it, inspected it carefully, and moved in with evident satisfaction.

But an English sparrow also found the hat, and as the hole (which I had inadvertently cut a trifle larger than was necessary) was just big enough for him to squeeze carefully in, he evicted the poor little wrens and took possession.

Yours truly to the rescue. Fastened a piece of stiff, heavy paste-board, with a smaller hole, over the original doorway. Discomforted sparrow; the wrens triumphantly moved back again, and little Mrs. Wren building away busily. I sat out on the porch what time I could spare (this was on Sunday) and then Mother took my place, as when we were there the sparrow dared not come near, but if left alone he would drive the wrens away and sit scolding on the perch, even though he could not get in.

And here comes the beautiful part of it. Those dear little wrens seemed to understand what I had done and why I did it, and were grateful. When Mother was keeping watch, little Mrs. Wren deliberately flew down and sat on her lap for a moment, while Mother talked to her. There was neither food

nor nesting material to be had on Mother's lap, and certainly wrens are not in the habit of alighting on people's laps—(certainly not a new pair of birds just arrived), so what was the motive, if not gratitude? Of course it was a little misplaced—the wrens simply did not distinguish between Mother and myself, and she got the thanks for what I had done, but it was sweet of the tiny birdie; and her mate added his quota of thanks by sitting in the porch vine and pouring out a perfect torrent of ecstatic melody.

But in the early dawn of the following morning I heard a great scolding from the sparrow, and defiant but anxious notes from the wrens, and on going out, found the sparrow and his mate had torn the hole out again and taken possession. This time I put on a wooden doorway; the undaunted wrens moved in once more, and that settled it. For days the little lady was busily and happily building away. He wanted to help too, and often brought bits of attractive-looking material and offered them, or tried to put them inside himself, but she always drove him away, and I never saw her accept any of the material he brought. He would hold it for a while, sometimes singing with it still in his bill, and then drop it. She often had a problem to work out, as the twigs she brought were quite long and sometimes branched, and it was hard work to get them ended around and inserted in the small doorway, but she always managed it in the end, though a piece would sometimes fall to the porch floor and she would have to get it and try again.

When she had been carrying feathers, and the nest was probably nearly done, I was on the porch in the early dusk, and she flew up to the nest and went in, apparently to sleep. He sat on the vine and sang for some time, and then flew up on the little perch and sang through the doorway. She answered him—a soft, sweet twitter, and he sat on the vine and sang a while longer. Then he flew up to the perch and sang to her again, but she was too sleepy to answer, and he flew away.

Now they are done building, but seem never very far away. He sits much of the time in the vine, watching and singing while she hops contentedly over the grass. The other day he was singing away on the vine when a big bumblebee came through under the porch. He turned his head and looked at the bee, who just at that moment discovered the hat with its inviting doorway. It seemed that the bee was also house hunting, for in it went. The song came to a sudden end, there was a quick flash of a tiny brown body, and a wrathful little wren peered into the nest, while I trembled for the safety of the tiny warrior, as the bee was so big; but in an instant he backed out of the nest, holding the bee firmly in his bill and gave it an angry fling off to one side, whence it flew away with all speed, while the little wren burst forth in triumphant song.

Interesting Observations of Red-Winged Blackbird.

Marthas Vineyard, Massachusetts.
To the Editor:—

The other day, while strolling across the downs at the northern end of this interesting island, I enjoyed what seemed to me to be a most novel and unusual experience with a red-winged blackbird. On emerging from the shelter of a small clump of scrub pine and oak, the red-wing, whose presence I had not even suspected, rose with cries of alarm from a patch of green-bay, blackberry, and poison ivy and flew straight towards me. When it was directly above me, at a height of about twenty feet, it remained stationary in a soaring position, only occasionally flapping its wings.

When I moved, the bird moved, keeping always directly above me; when I paused, it paused, and so we continued. As soon, however, as I had moved to a certain distance from the clump from which the red-wing had risen, it left its station above me and settled on the topmost branch of a small pine. Though it had left me, it continued its cries of alarm.

To find out just what the bird would do, I again drew near to the clump

about which it was so anxious. As I did so the bird once more took up its position directly above me and remained there till I had passed to what seemed to it a safe distance. Four times I tried this, and then having satisfied my curiosity and not wishing to torture the troubled creature any longer I left it in peace.

What it guarded so jealously the poison ivy prevented me from discovering, though I suspect it was its nest.

Sincerely yours,

EDWTH W. HUMPHREYS.

Two Fishhawks' Nests.

BY FRANK P. JEWETT, ORANGE, N. J.

Two fishhawks' nests in the tops of the two dead pine trees on the mainland near Anglesea Junction, south-



THE TWO NESTS OF FISHHAWKS.

ernmost part of New Jersey, where many hundreds of such objects are to

be found in the dense woodlands between the Delaware river and the ocean. One nest shown in the photograph is at least three feet in diameter and of proportionate height.

Destroying Cats in New York.

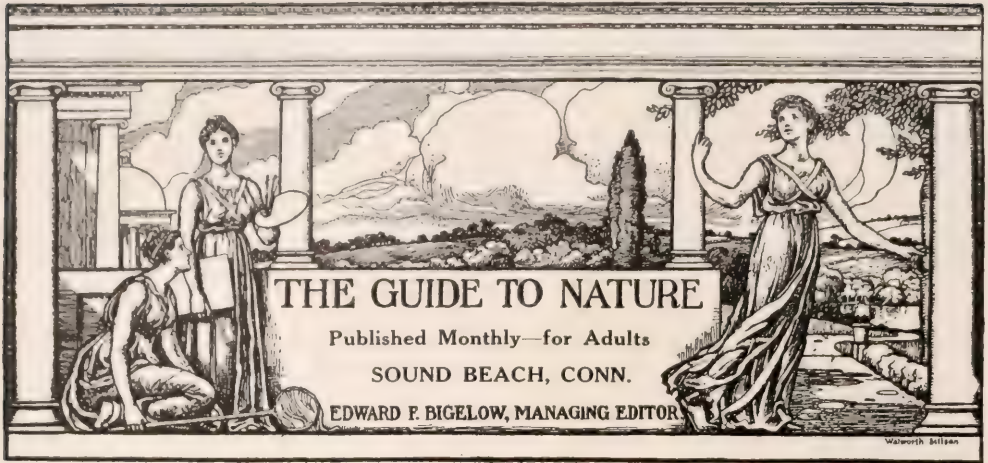
A New York correspondent recently called attention to the undesirability of permitting cats to wander at large in Central Park, particularly during the summer months, when their destructiveness to bird life is well known to be extensive. A letter addressed to Mr. Charles B. Stover, Commissioner of Parks for the Boroughs of Manhattan and Richmond, brought out the interesting fact that a man is employed to guard Central Park from the depredations of creatures calculated to be destructive of birds. He further states that from January 1 to June 1 of the present year, this guardian of the birds destroyed 161 cats found in the park.

While it is a well-known fact that that excellent institution, the American Society for the Prevention of Cruelty to Animals, annually kills many cats, it may be interesting to some to learn that according to a letter recently received from Mr. W. K. Horton, General Manager, the organization killed in New York city 100,904 cats between January 1 and June 1 of the present year. If all the towns and cities in the United States had as good a record for destroying homeless or discarded cats, there would be more song birds to brighten the earth.—T. G. P. in "Bird Lore."

WANTED—A similar cat killing organization in Sound Beach. It would have the gratitude not only of ornithologists, but of poultrymen.

Easily Raised \$7,000.

During President William Dutcher's vacation in Europe, his friends raised \$7,000 for the Mary Dutcher Memorial Fund, and additions to it are still being made. The plan met with universal favor. It is interesting and encouraging to note how much money is given in behalf of birds.



The Application of Knowledge.

Twelve million dollars could not have been invested to put into practice a grander idea than that expressed in the articles of incorporation of the Carnegie Institution of Washington—"That the objects of the corporation shall be to encourage in the broadest and most liberal manner, investigation, research, and discovery, and the application of knowledge to the improvement of mankind."

But the value depends upon the way in which this expression is construed. Does the final clause, "the application of knowledge," follow as the climax of all that has gone before—the end devoutly to be desired; or is it to be regarded as the least important part of the statement? The last-mentioned construction of the relative importance of the things to be "encouraged" appears to be the one adopted, or possibly is the one that has always been maintained. This seems to be the case, since the Institution has summarily, and apparently, if not intentionally, insulted Luther Burbank by discontinuing the allowance formerly given to him. President Woodward is strenuous in declaring that that allowance never was pledged for ten years, nor for any other special time, as Mr. Burbank so understood it, being justified in thus believing, because one of the Trustees told him so. A Trustee is supposed to be well informed, and to speak with authority.

But let us admit for the sake of argument that it never did have a definite limit, and the writer thinks that such a belief is well founded, because President Woodward, in a letter of July the twenty-ninth, writes, "I trust you will not have the audacity to state in print that the Institution pledged an allowance of \$10,000 per year for any stated period." Note the expression regarding our "audacity." We inquired respectfully whether it is true or not, that such an allowance had been pledged for that length of time. One would naturally infer from the President's somewhat equivocal dictum that no positive assertion of the kind had been made. Then is the injustice to Mr. Burbank all the greater. Think of a man, as busy as is Mr. Burbank, adapting his work so as to utilize ten thousand dollars a year, with the possibility that the money might be withdrawn at any moment. I invite a man to dinner, and tell him that the feast will end with the soup. Or I tell him that I will ferry him over the river, and toss him out when we reach deep water. Great "encouragement" that!

The more one analyzes the situation, the more it seems as if there was no "encouragement," but a shrewd seeking after all that could be got from a few years in the best part of Mr. Burbank's life.

But it is maintained that Mr. Burbank's enemies are many, and that they have been telling displeasing

truths about him. Some of these disagreeable things are darkly hinted in a letter from President Woodward dated August first: "You are certainly unaware of the thousand pages or more



Luther Burbank

From "The Human Plant." Courtesy of The Century Company, New York City.

of history bearing on this subject filed in our office."

Let every Carnegie library throughout the country be filled with tens of thousands of such pages, all bearing all sorts of "cuss words" against Mr. Burbank, from eminent scientist or from some petty, little, jealous horticulturist, and the reason why the Carnegie Institution should encourage him becomes all the more prominent. The allowance should be doubled and made for life, because one fact stands unquestionable, and that is the incalculable value of Mr. Burbank's application of horticultural discovery to the improvement of mankind.

It looks as if the Carnegie Institution thought it was buying a gilt-edged, de luxe edition of "Burbank"; that it read and re-read him and copied him for a few years, gladly PAYING

for these great privileges the paltry sum of ten thousand dollars a year. In the first years of this allowance, when Mr. Burbank was so extensively exploited by the newspapers, when it was impossible for him to personally meet more than a small percentage of the visitors who made pilgrimages from all over the world to Santa Rosa, he could easily have made twice ten thousand dollars if he had "gone on the road" as a lecturer, and had devoted to lecturing one-half the time that he gave to the supplying of the Carnegie Institution with information. It was seemingly not in any sense an encouragement, but a shrewd bargain to use the man to the extent of its desires, in exchange for money, an exchange of which he was not aware. In other words, he, like any other interesting book, was to be read so long as he pleased the high and mighty Institution, and was then to be tossed aside with no thought of the effect on the book. So they read on, and by and by they found several blotted pages devilishly inserted by jealousy, and they threw the book away.

It does not seem probable that there was in reality any such "shrewd bargain." Let us be charitable and assume that the original intent was to be an "encouragement." Then all the more is it to be regretted that good intent should be put in such bad light.

For why should the Carnegie Institution want to purchase the information and store it in its archives, with tomes of biological data to twelve decimal places on tons of paper? Who better than Burbank will put that information into practice? For some six years the Institution bothered the man, prying into all his affairs and methods, using his home for botanists and their stenographers, and taking his valuable time for dictation and revision of manuscripts. Then when they had apparently got all that they felt he could put into words, they unceremoniously dropped him. What about all the equipment that he had modified and enlarged to meet this special work?

Undoubtedly Mr. Burbank has methods that certain scientific men, and

many inefficient horticulturists, do not approve. Mr. Burbank may have faults. Some men do have them, even some great men. But the fact remains that he has achieved results in "the application of knowledge to the improvement of mankind," in horticultural matters, greater by far than those of any other man. He unaided fought the battle with poverty and with discouraging difficulties. He achieved such success as no other man in horticultural science had ever achieved. Newspapers and magazines vied with one another in their efforts to get facts about him for publication. Books came rapidly from the press. Visitors thronged from all parts of the world, glad even to look at his home and his experimental grounds.

Then for him came the unfortunate, evil day. The Twelve Million Carnegie Institution, apparently thinking "to capture him for science," and incidentally, perhaps, to buy another monument to itself, was skillful enough to capture him for its protegee. Then came jealousy and meanness without end. To the Carnegie people their monument evidently seemed not so tall nor white nor well sculptured as they had anticipated. They dropped it with a brief, curt note into Mr. Burbank's hands. The action brought glee to less efficient horticulturists. They rubbed their hands and patted one another on the back and said, "We did it by our letters and resolutions." To Burbank, the grand, kindly-hearted man, beloved by all who knew him and especially by the school children of Santa Rosa, it brought worry, discomfort, insult, distraction from his work. It became the unhappiness of his life. And why? Simply because the Institution had changed its mind! Was it at first in error? Was Burbank any less a man, because his jealous enemies were besmirching him? When he most needed encouragement the Institution insulted him. Oh, shame, shame! that wealth is willing to do this, and that the public will permit such conduct! Oh, unspeakable pity that Burbank with all his greatness, yes, even all his weakness that makes us love him the

more, is going to his grave in sorrow, and without even the cold comfort of knowing why he is so reviled. From extensive correspondence with Mr. Burbank and President Woodward, I quote this tender appeal and the iron-hearted reply.

From Luther Burbank (letter of June the twenty-eighth):

"I would ask you plainly why do the Carnegie people refuse to give the full facts, I DEMAND them. . . . I have never desired any publicity, and would always have greatly preferred private life except that it was necessary to mention my new creations in order to sell them to keep the work going; but I now desire publicity and lots of it, the more the better. I wish this thing dug to the very earth and the guilty parties exhibited to the light."

From President Woodward of the Carnegie Institution (extended letter of August the fourth, following several others):

"I have already declined to state the reasons for the action of our Board of Trustees in reference to Mr. Burbank. Out of consideration for him especially" (Oh, mark well the kind "consideration") "the history of our attempt to cooperate with him in his work should not be given to the public until after his death" (amended Carnegie spelling and not a typographical error).

And then in the same letter gratuitously to the writer:

"You show plainly that having acquainted yourself with only one side of a question you are nevertheless certain that there is no other." (This following repeated inquiries for information). "If your mind is already made up I shall not be disposed to pursue the subject further."

The "if" holds good; my mind isn't made up. The one thing that this magazine, Mr. Burbank, and thousands of his friends want to know, is your side of the matter, and we proclaim in behalf of justice and decency that you should not wait "until after his death," then to have friends lament and enemies rejoice—and poor, dear Burbank never know.

And further to the editor:

"Do you wish me to question your sanity?.....Your sense of humor ought to suggest to you the dilemma in which any such institution finds itself in these days."

And again in the same letter:

Similarly, your sense of humor and mental arithmetic ought to show you that if we distributed our income pro rata among applicants for it they would receive less than ten dollars apiece.

"What would you do under such circumstances if you were a Trustee and if you knew you would be held responsible for your acts? What would you do if you had to listen to a hundred times as much advice as you could possibly use on every project the minds of men can conceive? How would you get on with your own affairs if you had ten times as many applicants for aid, positions, and shares in your income as it could stand? Would not your sense of humor come to your rescue?"

Once "crazy" and three times humorous in one letter! But we demand Justice and Right, and atonement for insult and pain, from a Twelve Million Dollar Institution, to this great, good and beloved man—Luther Burbank.

But to answer the question of President Woodward of the Carnegie Institution, "What would you do if," etc.

If I were you, President Woodward, backed by twelve million dollars "to encourage . . . the application of knowledge to the improvement of mankind," I would do that, and not bring instead insult, distraction and sorrow to an efficient and faithful man who never sought your aid. Mr. Burbank was never one of your "many applicants," and what you say on that phase of your Institution is far from the matter under consideration.

Now that you have requested my advice, I gladly give it. Go on with what you started to do, at least so far as not to bring sorrow, insult and injustice to Mr. Burbank.



Characterization of Luther Burbank.

BY PRESIDENT DAVID STARR JORDAN, LE-
LAND STANFORD JUNIOR UNIVERSITY,
CALIFORNIA.

Luther Burbank is a modest, quiet, devoted worker in science, with a keen eye, a deft hand, a broad intelligence and a sensitive soul. He has taken up as his life-work the modification of plant life by the processes of crossing and selection. He has devoted himself whole-souled to this work, and with an industry amazing and almost without parallel.

* * * * *

Mr. Burbank has no patent on his methods. They are as open as the day. Thousands have used them before, as thousands will use them later. But not one in a hundred thousand has or will use them with like intelligence, deftness and skill.

* * * * *

Burbank's ways are Nature's ways, for Burbank differs from other men in this, that his whole life is given to the study of how Nature does things. His greatest service to science is to show what can be achieved through deeper knowledge of things as they are. He has shown the infinite variety of Nature as exhibited in the varying life and ways of the millions of kinds of living things. He has shown the unity of Nature in again demonstrating the final essential simplicity of creative processes. He has put into practical utility the teachings of his greatest master, Darwin, and he has enriched the world with thousands of fruits and flowers, useful and delightful, which but for him would have existed only among the conceivable possibilities of creation. He works in his own way with the tools he needs and the methods he can use. He has helped mankind by increasing enormously the economic values of plant life. He has helped even more our science and our philosophy by his practical and successful test of biologic theories. Among the men of science of century that is, Burbank is assured of a high and honored place, not as a "wizard" or as a clever operator, but as a man of broad views, exact knowledge, and noble and ennobling character.



BIRTHPLACE OF LUTHER BURBANK, LANCASTER, MASSACHUSETTS, MARCH 7, 1849.

Luther Burbank, while primarily an artist, is, in his general attitude, essentially a man of science. Academic he doubtless is not, but the qualities we call scientific are not necessarily bred in the academy. Science is human experience tested and set in order. Within the range of his profession of moulding plant life, Mr. Burbank has read carefully, and thought carefully, maturing his own generalizations and resting them on the basis of his own knowledge. Within the range of his own experience he is an original and logical thinker, and his conclusions are in general most sound.

* * * * *

Burbank has worked for years alone, not understood and not appreciated, at a constant financial loss, and for this reason—that his instincts and purposes are essentially those of a scientific man, not of a nurseryman or even of a horticulturist. To have tried fewer experiments and all of a kind likely to prove economically valuable, and finally to have exploited these as a nurseryman, would have brought him more money. In his own way, Burbank belongs in the class of Faraday and the long array of self-taught great men who lived while the universities were spending their strength on fine points of grammar and hazy conceptions of philosophy. His

work is already an inspiration to botanists as well as horticulturists, opening a new line of search in heredity, as well as a new field for economic advance. Already his methods are yielding rich results in the hands of others. We shall by such means find much more than we now know of the evolution of organisms, while the improvement of organisms for the use and pleasure of man is yet in its infancy.

Scientific men belong to many classes; some observe, some compare, some think, and some carry knowledge into action. There is need for all kinds and a place for all. With a broader opportunity, Burbank could have done a greater variety of things and touched life at more points; but, at the same time, he would have lost something of his simple intensity and fine delicacy of touch—things which schools do not always give and which too much contact with men sometimes takes away.

* * * * *

Great men are usually men of simple, direct sincerity of character. These marks are found in Burbank. As sweet, straight-forward, and as unspoiled as a child, always interested in the phenomena of Nature, and never seeking fame or money or anything else for himself. If his place is outside the temple of science,

there are not many of the rest of us who will be found fit to enter.

* * * * *

—*The Scientific Aspects of Luther Burbank's Work.*

"I love sunshine, the blue sky, trees, flowers, mountains, green meadows, sunny brooks, the ocean . . . but children above them all."—*Burbank.*

"A Genuine Contributor to Scientific Knowledge."

BY PROFESSOR VERNON LYMAN KELLOGG,
LELAND STANFORD JUNIOR UNIVERSITY, CALIFORNIA.

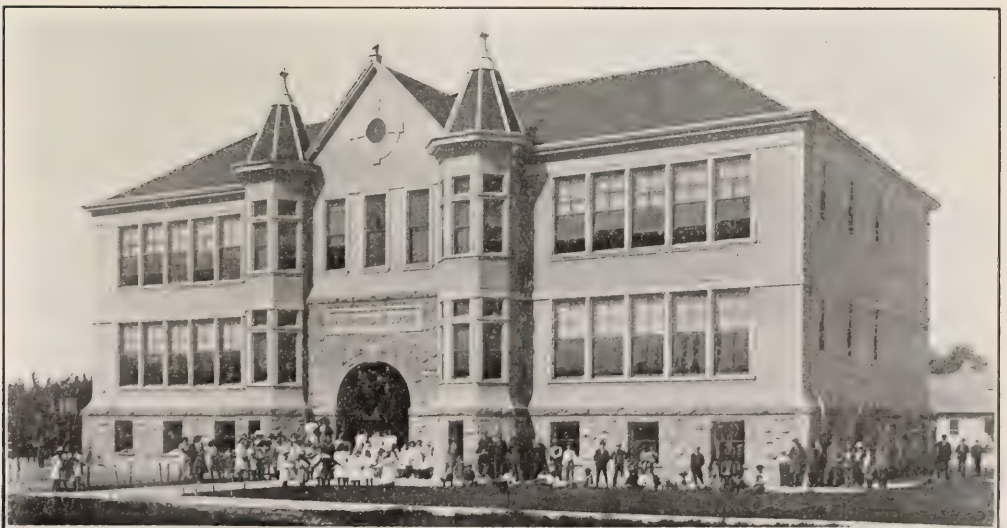
Luther Burbank has an advantage of true scientific character over his fellow workers, and in it he makes a genuine contribution to scientific knowledge of plant biology, albeit this knowledge is so far only proved to be attainable and to exist. It is not yet exposed in its details and may never be, however unselfish be the owner of it. For the going to oblivion of scientific data of an extent and value equivalent, I may estimate roughly, to those now issuing from any half dozen experimental laboratories of variation and heredity, is the crying regret of all evolution students acquainted with the situation. The recently assumed relations of Mr. Burbank to

the Carnegie Institution are our present chief hope for at least a lessening of this loss.

* * * * *

Let us, in a paragraph, simply sum up the essential things in the scientific aspects of Burbank's work. No new revelations to science of an overturning character; but the revelation of the possibilities of accomplishment, based on general principles already known by an unusual man. No new *laws* of evolution, but new facts, new data, new canons for special cases. No new principle or process to substitute for selection, but a new proof of the possibilities of the effectiveness of the old principle. No new categories of variations, but an illuminating demonstration of the possibilities of stimulating variability and of the reality of this general variability as the fundamental transforming factor. No new evidence either to help the Darwinian factors to their death-bed, or to strengthen their lease on life; for the "man" factor in all the selecting phenomena in Burbank's gardens excludes all "natural" factors. Here are some of Burbank's own words, touching these matters that scientific men are particularly interested in, in his work:

"All scientists have found that preconceived notions, dogmas, and all personal prejudice must be set aside, lis-



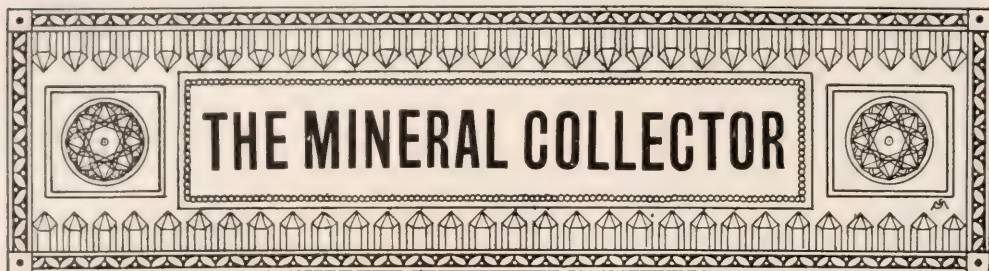
THE BURBANK SCHOOL, SANTA ROSA, CALIFORNIA.

tening patiently, quietly and reverently to the lessons one by one which Mother Nature has to teach, shedding light on that which before was a mystery, so that all who will may see and know."

* * * * *

Finally, in any summation of the scientific aspects of Burbank's work must be mentioned the hosts of immensely valuable data regarding the inheritance of characteristics, the influ-

ence of epigenetic factors in development, the possibilities of plant variability, and what not else important to evolution students, mostly going unrecorded, except as they are added in mass to the already too heavy burden carried by the master of the laboratory, and as they are summed up in those actual results which the world gratefully knows as Burbank's "new creations."—*The Scientific Aspects of Luther Burbank's Work.*



Address all correspondence to Arthur Chamberlain, Editor, 56 Hamilton Place, New York City

A Few Incidents.

BY WILLIAM C. BANKS, STAMFORD, CONN.

If mineral collecting serves no other purpose, it at least furnishes a good excuse for many a pleasant, muscle testing tramp among the hills. It gives us a definite object without which oftentimes we would not go. Those who do all their collecting by means of a dealers catalogue may get better specimens, but they miss the zest of searching and the knowledge gained by personal collecting not to mention certain amusing or provoking incidents that make up a large part of the mental records of our journeys. I remember well my first collecting trip. It was about twenty-five years ago. A party of school boys and girls together with several of their teachers visited the old Branchville, Connecticut, quarry. I was one of the party and I remember perfectly how that mine dump looked. Specimens? Why they were there by the wagon load. It seems down right wicked when I think of the amount of good nodular mica, spodumene and other equally attractive minerals that are buried there for the purpose of making an indifferent pasture. Part of our day was devoted to a trip to the Redding glen after

garnets. We were directed to keep to the left and assured that we would reach there in due time, in the wake of the girls and teachers who drove over. Well, we followed instructions and went several miles too far north before we discovered our mistake. We rejoined the rest of the party finally and were soothed by being told that we were wrongly directed by mistake. That, however, did not cancel the four or five extra miles we had walked; but the cooling effect of spring water and garnets wiped out the bitterness, if we felt any.

One day I was busily engaged in sledging out a specimen of nephrite when a wagon load of ladies and gentlemen—well, at any rate, they were men and women—drove past. Said one lady to another, "What is he doing?"

"Oh, don't you know?" was the reply. "He thinks he has found a gold mine."

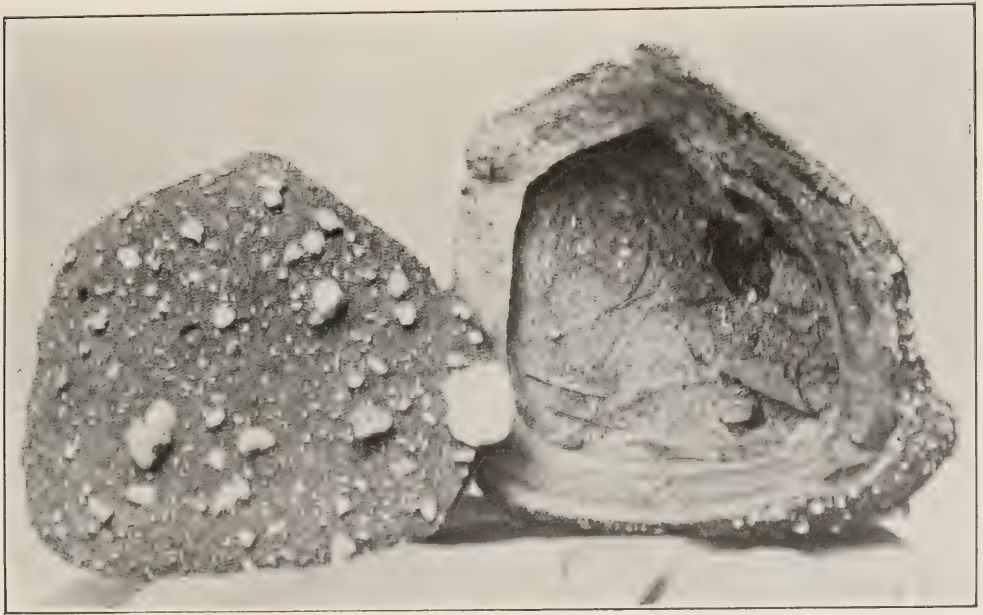
Now, to me, that was amusing, certainly not exasperating.

I have very pleasant memories of a trip I made to the Roxbury iron garnet mines some dozen years ago. One morning I awoke with an intense desire for spathic iron and scenery, and

I soon was headed toward Litchfield County. Well, after doing the serpentine twist up the Shepaug Valley, we arrived at Roxbury where my first act was one of mercy; that is, to specify, I helped to separate a very portly man from a large and populous sheet of sticky fly paper to which he had become attached in such a position that he could not see to separate himself from it. Verily it stuck closer than a brother. He proved to be the landlord of the local hotel and after a very satisfactory dinner with him, he offered to furnish me with a lantern to ex-

and waited for my train which was supposed to stop on signal. This night for some reason it did not stop and there I was, on a Saturday evening, marooned at Roxbury Falls and no train due until the next afternoon.

This would never do; the prospect was too exciting. I finally found a young man who agreed to drive me to Hawleyville, some ten miles away, if I would wait until he got a fresh horse. He did. The colt, he told me, had not been in harness in two weeks, and he went like a bird, only touching the high places, and so, likewise, did



A LIMONITE GEODE FROM LONG ISLAND.

Contributed to Arcadia by Mr. Benjamin F. Palmer, Sound Beach, Connecticut.

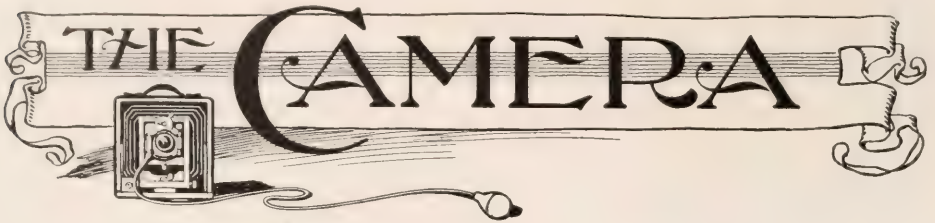
plore the old mine. But having visions of snakes, bobcats and various other unpleasant things inside, I declined and contented myself with collecting some very good specimens of siderite and black sphalerite on the dump. Then, the landlord having furnished me with a horse, carriage and driver, I started for the garnet mines, some four miles away. The scenery was interesting as was also my driver—a pleasant, dark eyed girl. I realize now that I enjoyed that part of my trip very much. I collected all the garnets I cared for, bade my driver good-bye

we as the light wagon bounced from the rocks and ridges with which the road was liberally supplied. It sarded to rain—a hard thunderstorm—and we went through it without even an umbrella. I have, I think, been swimming in less water than that. We finally reached Hawleyville with a broken wagon seat and the horse shy of one shoe, and I had a pocket full of mud and water. I reached home that night by way of Bridgeport, none the worse for the wetting, with a good supply of minerals and pleasant memories to last me many a year.

Limonite Geodes.

Limonite is an oxide of iron and is widely distributed through the earth. It is really an altered product, being the result of the oxidation or decomposition of other ores containing iron. It would take much space to describe all the different forms this mineral takes, so I will describe but one, the geodic form, an illustration of which will be found herewith. These geodes are generally found along river beds or other bodies of water and are formed by the decomposition of the inner parts

of these "iron shells," which often contain sand or pebbles, and are then called "rattleboxes." The outer surface is often coated with pebbles and resembles a conglomerate. Thus while the outside is almost always rough and uneven the inside is smooth. In quartz and calcite geodes the opposite is true, the outside being almost smooth and the inside coated with crystals having many sharp points. These limonite geodes are found abundantly at South River, New Jersey, although this particular specimen came from along the Atlantic coast.



Some Commendable Frauds.

Nature-faking is legitimate, when the faking is evidently done to make us laugh or to excite admiration for the skill of the faker. A lie well told may become good literature, and that false-

hood may eventually become classic. But when a naturalist puts a stuffed partridge on a nest and sells the photograph as a study from life, he becomes a contemptible liar. If, however, he labels the photograph correctly, he may



No. 1. HOW CAN LITTLE MEN MANAGE SO BIG GEESE?



No. 2. BIG GEESSE AND A GIANT HOG REQUIRE BIG CORN.

be entitled to credit as a taxidermist, or a photographer, or both.

It is not required that he label the

nest and partridge as imitations, provided they plainly show that they are such. That labeling would be as inap-



A Load of fancy Poultry.

No. 3. AND IT'S NOT A BIT TOO BIG FOR CHICKENS OF THIS SIZE.

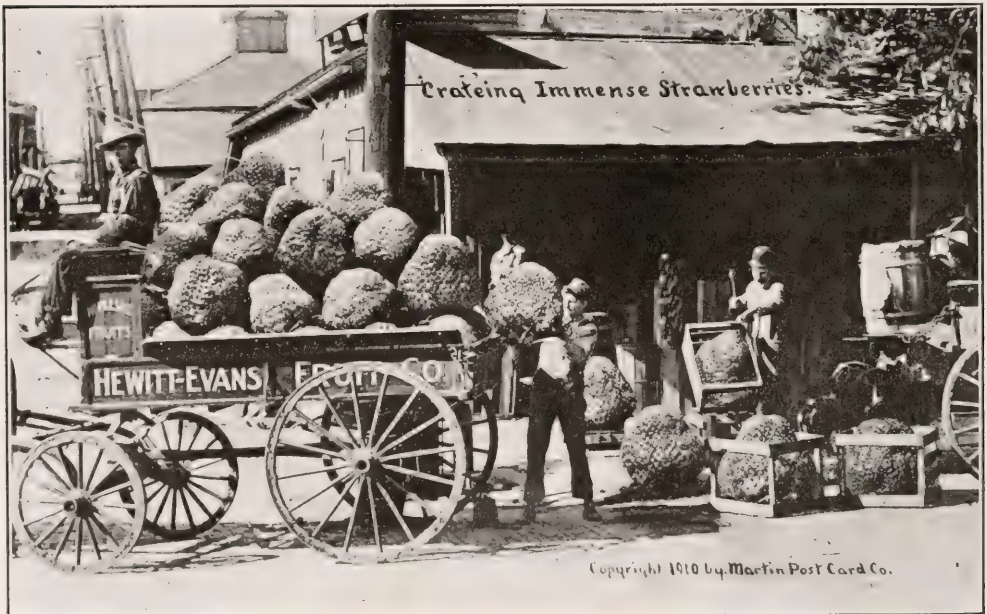


No. 4. FAIR SIZED SHEEP GROWN ON THIS FARM.

propriate and as humiliating as to tell a joke, and to be then compelled to say, "It was only fun; why don't you laugh?"

Patched photographs that present ob-

jects in other than their natural proportions are not new. Many photographers attempt to make them, but few specimens that have come to this office exhibit the



No. 5. AND THE STRAWBERRIES ARE NOT TO BE OUTDONE BY THE SHEEP!



No. 6. EVEN A CAMERA MAY BE ADDICTED TO FISH STORIES.

skill shown in several recently received from the Martin Post Card Company. These are exceedingly good in idea and in execution, and may easily become classic in photographic fiction.

These photographs are copyrighted by the Martin Post Card Company. We are grateful for permission to publish, and also for courtesies from "Field and Stream," New York City, regarding the photograph on this page.

We shall be glad to receive specimens of similar fictitious photography, especially those made from natural objects.

The Most Useful Lens.

I am often questioned as to what to buy for "the best all round lens."

No one lens will do everything. As well ask a golfer to get along with one stick, or a dentist to do all his work with one tool, as to expect a photographer to get along with one lens for the best results with everything. You must know your lenses as a horseman knows his horses and be in sympathetic touch with them. There are some for speed and for the prancing fancies of the photographer, while oth-

ers are unexcelled for his regular, routine, "heavy" work. One who is in sympathetic touch with his lenses soon gets in the habit of always using certain ones in that class of work for which they are best adapted. This class distinction may be almost wholly determined by the owner, and may not be a quality inherent in the lens. In the editor's photographic work for this magazine, the photomicrographs (that is, medium sized objects under a low magnification) are made by a three inch and a five inch Celor.

Some of the finest scenic and architectural work has been done by a nine and one-half inch Celor. The Dagors have been used most advantageously in laboratory work. Both of these lenses are made by the C. P. Goerz American Optical Company.

The most convenient, all around lens has been a No. 9 seven and one-half inches in combination Protar. The front is sixteen inches and the rear, eleven and three-sixteenths. This gives a wide range of focal lengths, as each part may be used separately and to good advantage.



THE PROTAR LENS PHOTOGRAPHED ITSELF.
Each half "took" the other, and then the whole itself in a mirror.

I find it more and more convenient to use the rear combinations alone. This longer focus (giving greater depth on near objects) is very convenient. The entire combination is a little too short, and the front a little too long, for such work, but they have other uses and qualities equally advantageous. At a very limited cost, there is no one lens that I have found so useful as this. Though tested only for five by seven cameras, it has excellent covering power on a six and one-half by eight and one-half, and is good for portraits and enlargements. My general use of that combination alone cannot be altogether a habit nor an idiosyncrasy; it must be that experience in the great convenience has led to the use. All the photographs of orchids, some of them unexcelled, in the last number, were taken by the lens. For rapid work the Unar, made by the Bausch & Lomb Optical Company, is good, especially with focal plane shutter. I do not find the Unar now listed in the recent catalogues of that company, except in long focus for portrait work.

Of the Tessar, extensively advertised in this magazine and elsewhere, I have no personal knowledge, but have been told by fellow photographers who have used it, especially on nature subjects, that it is surprisingly crisp, sharp and clear, and that it produces negatives of a peculiarly fine quality. It is undoubtedly to be considered as one of the best. One of my friends who is a "crank," as he terms

it, on all kinds of photographic lenses has written to me that there is a peculiarly fine quality in the Tessar which he has found in no other. But it must be remembered that you cannot get everything in one lens. The Celor is also fine, but neither Tessar nor Celor are divisible as are Protar and Dagor. It is mighty handy at times, and many times too, to have a lens that is divisible for longer focus.

The editor of *THE GUIDE TO NATURE* will gladly give advice if you are intending to purchase an anastigmat and he will also help you to produce the best possible work. Send on your nature photographs for criticism and suggestion. Twenty-five years' experience and an unexcelled equipment are now at your service, free of all expense. We really want to help you to take better photographs.

A Real Photograph by a "Ghost" Lens.

"Did you ever know of a photograph taken by a lens not in existence," I inquired of the expert in the testing department of Bausch & Lomb Optical Company, on a recent visit to their factory.

"Oh, yes. You mean a pin hole camera where no lens is used."

"No," I replied. "That is the absence of a lens. I mean a lens that is not of glass nor of any other substance, and yet gathers light rays and focuses them on the sensitive plate, so that a photograph is the result."

"Explain your riddle," he replied.

"A mirrored reflection of a lens is

not a real lens, is it? And yet that mirrored reflection has in itself the lens action." And then I explained what was new to him, and may be so to the reader, that a strange and surprising result was obtained in taking a mirror photograph of a Protar lens and shutter, which suggests some interesting experiments. The whole lens and shutter are shown herewith (the left part of the cut showing also front and rear lenses). The lens and the shutter were evidently photographed by the lens, the mirror simply reflecting back the picture of the lens. Thus a lens photographed itself.

But within that lens is a photograph of the entire camera, and all of the room back of the camera. As all of this view was back of the lens, it is evident that this picture was not produced by the lens in a mirrored reflection, but solely by the reflection of a lens; that is, the "ghost" lens in the mirror had a lens-like action, yet was not a real lens. So it may be truthfully stated that here is a photograph taken by a lens not in actual existence as a piece of glass.

It also was not produced by the real lens by photographing the reflection of the entire room and contents in the mirror, because all that direct reflec-

tion was far from being in focus when the front of the lens was in focus. A photograph of a reflection in the mirror of the room and its contents would be very different in process and results. This then is a much reduced picture of a room, and that reducing was not done by a real lens, nor were the rays focused on the plate by a real lens, but by the reflection of a lens—that reflection in itself being lens-like in action.

A Skilled Workman With Efficient Tools.

Our valued contributor, Mr. George W. Kellogg, in the last number of *THE GUIDE TO NATURE* (page 182) made the following statement:

"The editor of *THE GUIDE TO NATURE* is to be congratulated because he is the user of lenses of a higher grade than the average of his subscribers and readers can hope to afford. It is his privilege to sing praises to his lenses and the makers thereof as often and as long as he desires. If he feels it to be a duty, let him do that duty well but let him not forget that it is also his duty, if he proposes to teach photography, to show the less fortunate of his pupils the way to the best results within the limitations of their respective equipments, and without discriminating between the poorest who can afford only a dollar outfit, and the most well-to-do to whom hundreds of dollars will not be an obstacle to separate them from the equipment they desire."

We accept the congratulation but deny the truth of the comparison. The reader *can* "hope to afford." That is all I did; and I kept on hoping for about a quarter of a century. I hoped, and I borrowed, and now and then I owned a cheap camera, sold it and bought one a little better. But it was after more than twenty years of using all sorts and sizes with the cheapest of lenses that I saw the light go through an anastigmat to the ground glass. Joy of all joys; hail, holy light, that shows things as they are, and no longer through a glass darkly, and distorted, and dish curved.



A PHOTOGRAPH OF A ROOM AND CONTENTS
"TAKEN" BY THE REFLECTION OF
A LENS.

Yes, Mr. Kellogg, you are right. The editor should "show his readers their purchasing power," but only for one purpose, one hope, to become so skilled as to merit the best lenses that are made. Make you contented with the rectilinear or "cheap John" lens that you have! Never. It would be sacrilegious. Sell your shirt, pawn your watch, go without actual necessities—hope and keep on hoping, and by and by, if you are worthy, the fulfillment will come. For long evenings, and occasionally during the day, you will get the Bausch & Lomb catalogue in one hand and the Goerz in the other. You will adore the words, Protar, Dagor, Celor, Tessar; you will study the dollars and cents column. You will compare apertures, focal lengths, shutters. Then you will figure over many a pad slip, crumple them up and throw them away in despair. But by and by, if you put enough heart, and hard work, and hope, and deprivation, there will come a box—just a little box, too. With trembling hands and eager eye, you burst off the cover—careful now—pull out the excelsior, unwrap the white tissue paper. It is true; it is not a dream; here is a lens—a great, bewilderingly cheering piece of glass in a shutter.

"I wonder if they did fit it to the lens board all right."

They did!

The old box has a new eye and heart.

Then you will go out to see if all they said is true. Will its focus be sharp to the corners—diaphragm wide open?

Then along will come a neighbor, and another. Is every dweller on the street out of his house to-day! Seems so.

"Hello, Mr. ——. Going to take a picture of your house?"

Great Scott! It's true. Mortar on the chimney and in the foundation at the same time.

"Do a good deal of photography, don't you?"

And then with a little adjusting of the lower lever: Whew, who would have believed it? Look at that for depth. Right here, even the gravel is

sharp, and so are the twigs on those trees a mile away.

"Say, Mr. ——, when you cannot find anything else to photograph come up and photograph my house, will you?"

How clear everything is—seems like looking out of a bay window on a beautiful day.

"Well, good day, Mr. ——, you seem to be busy."

And when he is a block away, you feel that you have been discourteous, so you call him back and, to make amends you talk to him for fifteen minutes about perpendicular and horizontal lines and clear field and cut corners. What does he say? Nothing; but he keeps backing away till two blocks off; then you stop for breath and he calls back:

"You're full of it I see. Come up and 'take' my dog."

Dog be dog gone and he with it. That man doesn't know what it is to live. He never waited twenty years for an anastigmat!

* * * *

And then you rush in and call out everybody in the house. The neighbors get to the windows and wonder what has happened. You shout as one on the veranda is so slow "Oh do come quickly and see this definition and flatness of field and sharp corners and good light, and—and"

"Eh, what was it?" you inquire.

"What did it all figure up?"

"Including expressage and fitting—only ninety-four dollars and seventy-five cents. Dirt cheap for so fine a one."

"But you won't have to get another, will you? They last a lifetime, don't they, and one so good as that will do all your work?"

"Oh, yes, yes. They last for some time and will do a lot of work—good PAYING work too."

And then, walking into the house, slyly take out a bit of crumpled paper, as if it were a part of the packing, and look at the figures. Another make, four inches more in focal length, costs —

But, Mr. Kellogg, you are wrong about the twenty-five per cent. lens and seventy-five per cent. worker. It is one hundred per cent. lens and a one hundred per cent. worker. The good lens is worth while. The cheap lens will do something, will do more if skillfully handled; but the high grade lens will do everything that can be done in the wonderful portrayal of nature by light writing.

I have a theory, and it has worked true, that somehow, somewhere, the world will put into our hands the tools which we are best fitted to use. It took twenty years for me to fit myself for an anastigmat, and my advice to you, reader, is to work with head and heart and hands, till you too get

one and get out of it all that is in it. If you cannot get more out of it than you can out of the cheap lens, then it isn't in YOU to get it. You need to plod and hope and dream for a few years longer.

But some day it will come, and great joy and success with it—and then you will want another, and still another and still another, and—and—all will be worth while, and each will be ideal in its place.

Argue the question?

There is no argument.

Yes, there is. To do the good lens justice demands more love for art, and more true affection for the bit of glass than does the smaller and cheaper lens.

LITERARY AND BIOGRAPHICAL

The Story of Matka. A Tale of the Mist Islands. By David Starr Jordan. San Francisco, California: Whitaker & Ray-Wiggin Company.

This is a charming and most pathetic story of animal life, the pathos of the story making a deep impression on the reader. The life of the seals on Mist Islands is simply and interestingly described.

"Unlike the average 'nature-study reader,' which usually tells what the child should find out for himself, and tends to deaden his interest in the real world about him, the present story tells what should be told and quickens the child's interest in all that lives by portraying the human element in animal life and by arousing his indignation at the cruel manner with which men treat 'their kin who cannot talk.' Wholly aside from being a true story of animal life, it is also a piece of good literature, and among the many books of its kind which has been produced within recent years, it is easily one of the best."

Ant Communities and How They are Governed. A Study in Natural Civics. By Henry Christopher McCook. Illustrated from nature. New York: Harper & Brothers.

In the Publisher's Note to the author's "Tenants of an Old Farm" this statement is made: "Doctor McCook thinks this prompt

demand for a book traversing the field of natural history is largely due to the influence of The Agassiz Association."

Regarding that book and this more recent one, "Ant Communities," The Agassiz Association can return the kind words and state that his books have done much to stimulate and extend the work of our Agassiz Association. Doctor McCook is always interesting and an accurate writer, and this last book by the veteran naturalist has all the enthusiasm of youth, though it is "more than thirty-two years since the author published his first observations of American ants."

Ants. Their Structure, Development and Behavior. By William Morton Wheeler, Ph. D. New York City: The Columbia University Press.

This volume is one of the most interesting and scholarly of the Columbia University biological series. It is profusely and excellently illustrated. Professor Wheeler is the most diligent student of ants in America. He speaks with the authority of a technical expert and yet has written a book that is as interesting as those where interest is placed supreme to fact. It should be "popular" in every sense. The chapter on "Methods of Collecting, Mounting and Studying Ants" gives directions easily followed by any one, even a child.

Swimming. By Edwin Tenney Brewster. Boston, Massachusetts: Houghton Mifflin Company.

For any one who wants to learn to swim, to swim better, or to teach some one else to swim, Mr. Edwin Tenney Brewster's little handbook entitled "Swimming" will be of unique helpfulness. It is a compact and well-arranged manual, giving instructions so clearly and entertainingly that the reader, given the opportunity for practice, can scarcely fail to acquire the art of swimming in all its branches in a short space of time.

Manual of Gardening. A Practical Guide to the Making of Home Grounds and the Growing of Flowers, Fruits, and Vegetables for Home Use. By L. H. Bailey. New York City: The Macmillan Company.

The spirit of this book is excellent—ideal. No better can this point of view be shown than by the following quotations. They are worth careful consideration.

"Wherever there is soil, plants grow and produce their kind, and all plants are interesting; when a person makes a choice as to what plants he shall grow in any given place, he becomes a gardener or a farmer; and if the conditions are such that he cannot make a choice, he may adopt the plants that grow there by nature, and by making the most of them may still be a gardener or a farmer in some degree.

"Every family, therefore, may have a garden. If there is not a foot of land, there are porches or windows. Wherever there is sunlight, plants may be made to grow; and one plant in a tin-can may be a more helpful and inspiring garden to some mind than a whole acre of lawn and flowers may be to another.

"The satisfaction of a garden does not depend on the area, nor, happily, on the cost or rarity of the plants. It depends on the temper of the person. One must first seek to love plants and nature, and then to cultivate the happy peace of mind that is satisfied with little.

"In the vast majority of cases a person will be happier if he has no rigid and arbitrary notions, for gardens are moodish, particularly with the novice. If plants grow and thrive, he should be happy; and if the plants that thrive chance not to be the ones that he planted, they are plants nevertheless, and nature is satisfied with them.

"We are wont to covet the things that we cannot have; but we are happier when we love the things that grow because they must. A patch of lusty pigweeds, growing and crowding in luxuriant abandon, may be a better and more worthy object of affection than a bed of coleuses in which every spark of life and spirit and individuality has been sheared out and suppressed. The man who worries morning and night about the dandelions in the lawn will find great

relief in loving the dandelions. Each blossom is worth more than a gold coin, as it shines in the exuberant sunlight of the growing spring, and attracts the insects to its bosom. Little children like the dandelions; why may not we? Love the things nearest at hand; and love intensely. If I were to write a motto over the gate of a garden, I should choose the remark that Socrates is said to have made as he saw the luxuries in the market, 'How much there is in the world that I do not want!'

"I verily believe that this paragraph I have just written is worth more than all the advice with which I intend to cram the succeeding pages, notwithstanding the fact that I have most assiduously extracted this advice from various worthy but, happily, long-forgotten authors. Happiness is a quality of a person, not of a plant or a garden; and the anticipation of joy in the writing of a book may be the reason why so many books on garden-making have been written. Of course, all these books have been good and useful."

"I expect, then, that every person who reads this book will make a garden, or will try to make one; but if only tares grow where roses are desired, I must remind the reader that at the outset I advised pigweeds. The book, therefore, will suit everybody—the experienced gardener, because it will be a repetition of what he already knows; and the novice, because it will apply as well to a garden of burdocks as of onions."

"The burdock is one of the most striking and decorative of plants, and a good piece of it against a building or on a rough bank is just as useful as many plants that cost money and are difficult to grow. I had a good clump of burdock under my study window, and it was a great comfort; but the man would persist in wanting to cut it down when he mowed the lawn. When I remonstrated, he declared that it was nothing but burdock; but I insisted that, so far from being burdock, it was really Lappa major, since which time the plant and its offspring have enjoyed his utmost respect. And I find that most of my friends reserve their appreciation of a plant until they have learned its name and its family connections."

"The plants on the dump wanted to grow, and the imported plants in the garden did not want to grow. It was the difference between a willing horse and a balky horse. If a person wants to show his skill, he may choose the balky plant; but if he wants fun and comfort in gardening, he would better choose the willing one."

"The joy of garden-making lies in the mental attitude and in the sentiments."



PUBLISHER'S NOTICES

'Tis not in mortals to COMMAND success, but we'll do more, Sempronius, we'll DESERVE IT.—Addison: Cato.

Yes, We Are Deserving Success.

I find the magazine very interesting as well as instructive—*Miss Susan S. Fessenden, Stamford, Connecticut.*

The magazine is very interesting to my pupils as well as myself.—*Annette M. Blount, Wellesley, Massachusetts.*

Money does not pay for such contributions to the world's literature.—*Amelia H. Benjamin, Spring Valley, New York.*

I enjoy THE GUIDE TO NATURE very much indeed, and hope to continue my subscription as long as I live. Do not see how I ever got along without it.—*Mrs. J. B. Lysitt, Little Falls, New York.*

My own personal opinion is that you have a very fine periodical and one which should escape by far the fate of a number of our earlier nature books which are now only a sweet recollection of by-gone days.—*Louis S. Kohler, Bloomfield, New Jersey.*

It is one of the few monthly visitors that receives concentrated attention until all its good points are assimilated. Glad to note the signs of prosperity and hope the work will continue to increase in the same ratio as past.—*W. S. Beckman, Cincinnati, Ohio.*

By the way, I must not let this opportunity go by without saying how much I appreciate the work that you are doing in publishing this magazine. I am recommending it to the teachers in the high schools of the state as one of the best things, if not the best thing now available.—*Professor Chas. E. Bessey, The University of Nebraska, Lincoln, Nebraska.*

I shall indeed be glad of any opportunity to assist in your work. Your magazine seemed like a breath of country air from New England, and as I was fortunate enough to come from a small town there, you can understand that I appreciate your publication. All

the issues sent me are in my home, accessible to my friends and family.—*Ernest F. Briggs, Chicago, Ill.*

Catalogue of Anatomical Models.

The Department of Natural Science of the Kny-Scheerer Company (404-410 Twenty-seventh street, New York City) has issued a very fine catalogue of anatomical models. In itself it is an interesting text-book on the subject and should be in the hands of every one interested in natural science.

The C. P. Goerz Optical Co.

The vacation season having closed, it is probably time to say a few words relating to the season's business in photographic lines.

The C. P. Goerz American Optical Co. report a very satisfactory and encouraging sale of their high-grade Anastigmats and Cameras. The volume of business handled by them this summer far exceeds that of the same period in the past few years and they look forward to a corresponding heavy demand for their goods during the coming fall and winter months.

Notwithstanding the increased volume of business the firm has arranged that all of their employees receive the customary vacation with full pay, because the management feels that all the employees, the clerical as well as the factory staff, all who have helped to a successful result, should have a chance for enjoyment and recreation.

At the present time the Optical department is away and upon the return of this force the Mechanical department will lay their tools aside to sojourn to green hills and shady nooks or to the seashore, wherever their inclination draws them. [Later—all home now.]

Between times the clerical and supervising staff run off on a hunt for recreation as it of course will not be possible to close the office for any length of time.



Negative by John Alden, Lawrence, Mass.

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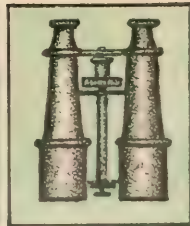
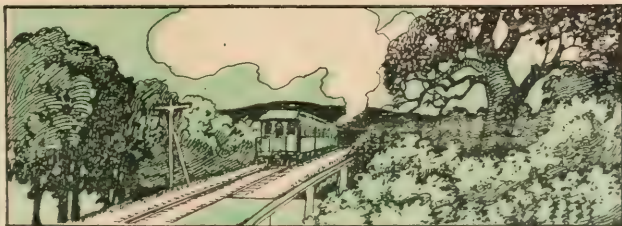
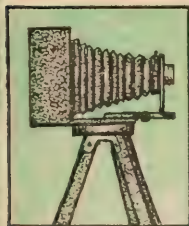
EDUCATION

The Guide to Nature

Sound Beach, Conn.

AN ILLUSTRATED MONTHLY MAGAZINE FOR ADULTS, DEVOTED TO COMMONPLACE
NATURE WITH UNCOMMON INTEREST

EDWARD F. BIGELOW, Managing Editor



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Keofferam Park, Sound Beach.

This is a new development in residential property, situated in Sound Beach, town of Greenwich, Conn., on the main line of the N. Y., N. H. & H. R. R., about thirty miles from New York city, and possessing numerous natural advantages and offering many inducements, in its environments on land and water, to the seeker of a country home or summer residence.

The accessibility to various transportation points and commercial centres and the unlimited shore and water privileges, together with a surrounding country of scenic beauty, which is unsurpassed; and its nearness to

Arcadia, the home of nature study, and to Arcadian country, makes this property and its immediate vicinity an ideal location for residential purposes.

Already established are some of the finest residences and most valuable estates in the county. In the near vicinity are "Innis Arden," with its many acres, and long extent of beach front, the home of Mr. J. Kennedy Tod, of New York city; "Laddin's Rock Farm," the property of Mr. Wm. L. Marks, of New York, an inland tract of more than one hundred acres laid out as a beautiful park in all its naturalness of woodlands, fields and streams. This is the Mecca or sacred



A VIEW OF THE BAY AND THE SOUND FROM THE BEACH AT KEOFFERAM PARK.



NAWTHORNE STREET, SHOWING ITS APPEARANCE SO FAR AS DEVELOPED.
Looking eastward from the beach land.

gathering place of all students of nature. Not far away is "Willowmere" a 60 acre tract, the estate of the late Mr. A. A. Marks, beautifully situated

on the shores of Greenwich Cove and backed by a most picturesque and interesting bit of woodland.

In short the atmosphere and sur-



A REMARKABLE AND INSTRUCTIVE GEOLOGICAL STUDY.
The drying and cracking, "like huge cakes of rubber," in the filling of the marshes at Keofferam Park.

roundings are of serene country life where one can study and appreciate the handiwork of nature in both animal and plant life of land and water, yet enjoying all the facilities and modern improvements of real city life. Here we have a modern railway station, post office, churches, shops and stores, a most up-to-date school, library, hotels, livery stables, garage and a fire department.

And now for a bit of history in connection with Keofferam Park around which the thoughts of the writer are centering.

Prior to the year 1640 all the lands adjacent to the waters of Long Island Sound and extending from the Potomack river, now known as Tomac Harbor, to the Asamuck river, now known as the Mianus river, was owned and occupied by Indian tribes under the Sachems of Amogerone, Nawthorne, Amfsetthhone and Keofferam. In 1640, according to the town records of Greenwich, Keofferam sold his right in the above land to Jefferre Ferris. A large part of this original purchase has remained in the Ferris family for 260 years, passing from the said Jefferre Ferris to his son Nathaniel; thence to his son George; and to his sons and daughters from whom the present owner purchased same in 1900. The homestead, however, still remains in possession of one of the heirs of the said George Ferris.

This property in 1900, which comprised about 35 acres, was one of the most productive farms of its size in this section of the town and possessed many attractive features and natural advantages which the present owner saw would meet the ever increasing demand for choice country residential property, where the summer season could be spent or the entire year if needs be. Inspired with this idea the present owner at once began work of development, such as opening up roadways with sidewalks, and arranging facilities for light, water and sanitation. This done the property was then ready to be named and offered to the home seekers. Very fittingly the name adopted was Keofferam Park, in honor of its illustrious and first owner on record, Keofferam. Thus you are introduced to this haven of rest and



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Cuzco corn grown for scientific purposes in Arcadia.

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recreation for those desiring a better knowledge of and acquaintance with nature.

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EVEN A POLE FOR WIRES. NATURE STRIVES
TO MAKE BEAUTIFUL.

This is in front of Mr. Hoyt's home, pictured on the
previous page.

You are giving us an original, ad-
mirable paper that surely must do
much good to the young students.—
Dr. George F. Kunz, New York City.
[And why not to the older ones too?]

You are doing good work.—keep it
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STAMFORD, CONNECTICUT

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Going to Nature North of Stamford.

Some morning in October when the air is crisp with frost, and the brightness of the sun promises a warmer noontide, start out with your horse and runabout, or if you are fortunate in owning an auto, and take a ride over the hills on the west side of old Stamford town.

Starting from Broad street, and going west you will cross one of Stamford's fine bridges of which she is justly proud. Through West Broad street and up Hubbard's Hill you pass the long established green-houses of Geo. Waterbury, where Stamford's new hospital is to be erected.

From now on, the stretch of finely built road is a delight to the motorist. It is so broad and even. Beyond the property of L. M. Palmer on the left you will come to a picturesque farm house nestling behind overhanging weeping-willows, and fine old maples. This is "The Homestead," where resided for many years the late George M. Hubbard. There is a dip in the road, and you cross a gurgling brook, and at the turn, come out again on to the broad roadway, passing the century old house of John Rutz, to the right, and then you come to three roads, all equally good. One goes to Stillwater and on to Long Ridge, and still further to Bedford. The road to the left takes one over Palmer's Hill, the sign board reads, and the center one mounts the high hill which leads to Westover Farms, where there is a dairy of that name.

If you follow the Palmer's Hill road, it will lead you past many beautiful farms and homesteads. The first was the home for a half century of the late Miss Hannah Lounsberry, one of the first progressive women farmers that Stamford knew.

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"AT THE TURN OF THE ROAD."

Photographed by Miss Julie Adams Powell.

A rise in the hill just here brings a glimpse of Long Island Sound, and the well kept roadsides, massive stone fences, weedless meadows, show that the residents of Palmer's Hill believe in improving the appearance of the roadsides as well as the door yards.

Here are the residences of Douglass Alexander, Henry C. Bernheim, Chas. E. Ertz, Mrs. Henry O. Havemeyer, Franklin S. Jerome, Myron I. Borg, J. H. Seymour, S. C. Sperry, G. A. Stafford, Ross M. Turner, and J. Edward Poillon.

Stamford's roads were never in a better condition than they are today, and it is a credit to the selectmen, because the heavy auto-traffic causes much greater wear on the road bed. In these days of travel by motors, where everyone is interested in the safety and good condition of the roads, the selectmen are greatly in favor of the general interest property owners take in keeping the roads in good condition. The roads are the first things that city buyers of real estate inquire about.

The Palmer's Hill section is the oldest road hereabouts. It was originally, "The King's Highway," from New York to Boston.

J. A. P.

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We enjoy your magazine very much.—
Mrs. C. T. Root, New York City.

'TIS A FACT---**Get a Business Education at Merrill College****AND THE SALARY IS SURE TO COME****Day and Night Sessions****Books and Stationery Free****1888---MERRILL---1910****SOUTH NORWALK****STAMFORD****PORT CHESTER****A Beautiful But Misused Show Window.**

For many years there have been no more attractive show windows in Stamford than those of Lyman Hoyt's Sons & Company's furniture store. So generally attractive have they been that they have come to be regarded, from their pleasing arrangement and their artistic contents, as suitable places for the public exhibition of loving cups, prize cups, and other objects of public interest and of brotherly good feeling.

One window has usually been devoted to specimens of the work of skilled artists. As many of these were of nature subjects, the window has been efficient in promoting a love of nature and of outdoor life. During this last month an exceptionally fine collection of paintings has been on exhibition, but all the good that such a display might do has been more than counteracted, because it was chiefly a skilled portrayal of ravages of nature so offensive as to be monstrous. The subjects were white birches, always beautiful in form and outline, graceful trees that usually stand by the side of some entrancing entrance to the woods, or overhang the bank of a pellucid stream. So far as the artist had attempted to portray the delicate beauty of the birches, he had done well. But he and the store made a mistake in offering, as an object to be studied and admired, the devastations of vandals, presumably human beings, that had stripped the bark, apparently in indescribable wantonness, and had left the boles as bare as a scalded arm whose naked flesh quivers in the irritating air. One of the beliefs of learned and advanced botanists is that every vegetable has sensory nerves, slightly developed, it is true, but present; low and slow in function, it is true, but still sensory. Then why? Does the raw flesh of your parboiled arm add to the mem-

Fall Styles in Soft Hats and Derbies

KNAPP DE LUXE \$6.00 KNAPP-FELT . \$4.00
HAWES . . . 3.00 REGENT . . . 2.00

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Dr. Givens' Sanitarium at Stamford, Conn. (50 minutes from New York City), offers exceptional opportunity for the treatment of NERVOUS and MILD MENTAL Diseases, and has separate detached cottages for persons who desire perfect privacy and pleasant surroundings; and who are addicted to the use of STIMULANTS or DRUGS.

The Sanitarium is on a hill overlooking Long Island Sound. Try this invigorating climate of New England when you have patients desiring special treatment.

Write or wire**DR. GIVENS' SANITARIUM****Stamford, Connecticut**

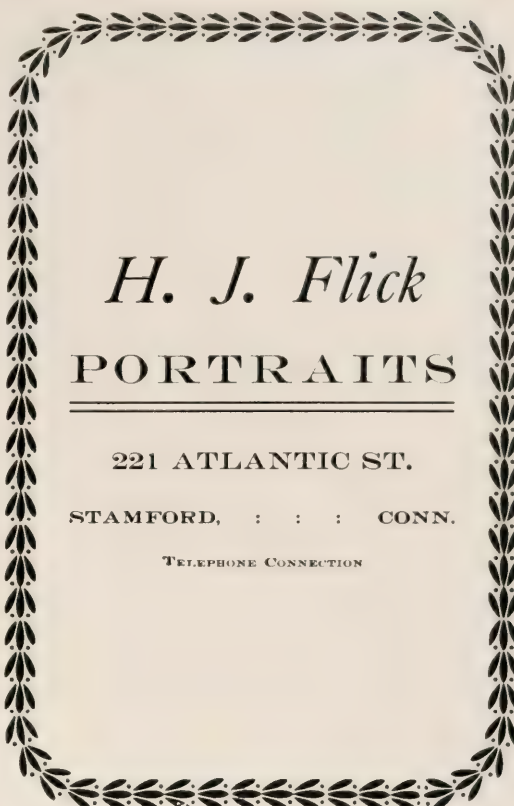
ber's beauty? Does it increase the arm's usefulness? Does the tearing of the skin from a birch tree—does it give the tree a certain kind and a certain amount of agony? Do you know that it does not? Why not think it over? The scoundrel that wounded those lovely trees had forgotten, or more likely had never heard of St. Paul's command: "In conclusion, Brothers, *wherever* you find *anything* true or honorable, righteous or *pure*, lovable or *praiseworthy*, or if '*virtue*' and '*honor*' have any meaning, *there* let your thoughts dwell." (St. Paul's Epistle to the Philippians, 4: 8—Twentieth Century New Testament.) 'Tis good advice. The reader, too, might consider it for a moment or so. But first listen to what Wilson Flagg, in his "Woods and By-Ways of New England," says of the white birch:

"The white birch is remarkable for its elegance. Like the alder, it is employed by nature for the shading of her living pictures, and for producing those gradations which are the charm of spontaneous wood-scenery. In all the Northern States a pitch-pine wood is generally fringed with white birches." The main stem "extends to the summit of the tree, giving out from all parts numerous slender branches, forming a very neat and beautiful spray, of a dark chocolate color, contrasting finely with the whiteness of the trunk. The durability of the bark is said to be unsurpassed by that of any other vegetable substance. In the ruins of Dworotrkoi, in Siberia, a piece of birch wood was found changed into stone, while the outer bark, white and shining, remained in its natural state." It "is found in the highest latitude in which any tree can live. It is the last deciduous tree in the northern boundaries of vegetation in America and Europe, before we reach the Arctic Circle.... occupying the belt just below the line of perpetual snow."

Now let me remind you of St. Paul's command, and let me leave it with you.

But don't, oh don't call such ravaging beautiful.

It is certainly a most admirable publication and deserving of great success.—*George Letchworth English, Shelby, North Carolina.*



H. J. Flick

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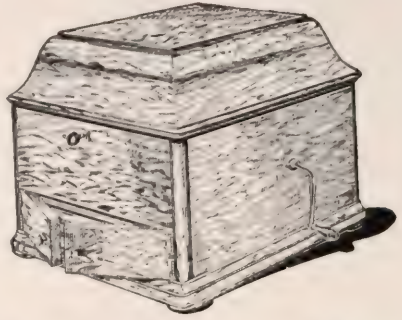
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It brings the Opera, Theatre and Vaudeville into the family circle, keeping all who hear it in touch with up-to-date music. Let us put one in on trial. Cash or installments.

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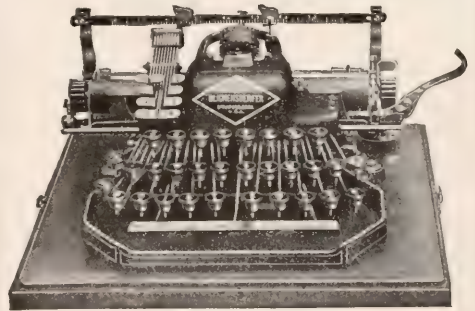


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\$1,500 to \$175,000

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Thoroughly adapted for home or office use.

So Simple any inexperienced person can operate.

So Strong it will stand the hardest kind of work.

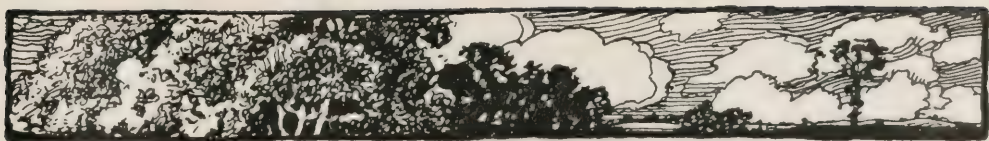
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Scientific or Universal Keyboard.

It will be to your advantage to investigate before purchasing any other.

Send for Catalogue 112

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We know only life here in this world, and, therefore, if there is a purpose in our life, it is also here in this world.—*Tolstoi.*

O, Son of Man,

Neglect not My Laws if thou lovest My Beauty, and
forget not My Counsels, if thou art hopeful to
obtain My Will.—*Baha Ullah.*

Arcadia

EVERY ONE SHOULD READ THE BOOK OF NATURE

This introductory relationship with Nature is a resource of inexhaustible delight and enrichment; to establish it ought to be as much a part of every education as the teaching of the rudiments of formal knowledge; and it ought to be as great a reproach to a man not to be able to read the open pages of the world about him as not to be able to read the open page of the book before him.—*Hamilton Wright Mabie in "Essays on Nature and Culture."*





A HOME OF NATURE—THE MUSEUM OF NATURAL HISTORY AND ART.
At Pittsfield, Mass. Built by Mr. Zenas Crane of Dalton, Mass.

"If you speak of a stone," says St. Basil, one of the Fathers of the Church, "if you speak of a fly, a gnat, or a bee, your conversation will be a sort of demonstration of His power whose hand formed them, for the wisdom of the workman is commonly perceived in that which is of little size. He who has stretched out the heavens, and dug up the bottom of the sea, is also He who has pierced a passage through the sting of the bee for the ejection of its poison."



THE GUIDE TO NATURE

EDUCATION AND RECREATION

VOL. III

OCTOBER 1910

No. 6



Natural History for a Community

By EDWARD F. BIGELOW, Arcadia: Sound Beach, Connecticut



THE city of Pittsfield, Massachusetts, with the surrounding country is to be congratulated upon the possession of an ideal museum of natural history and art, built and equipped by Mr. Zenas Crane of Dalton, Mass. Many years ago Mr. Crane conceived the idea that he could no better express his love for the home county than by the establishment in it of a large headquarters for the study of nature and art.

Thousands of other people, in fact almost everybody, believe in the beauty, the interest and the uplift of nature; but, sad to say, comparatively few put that belief actively and financially into practice.

All parents believe that an interest in nature "is good for the children" and for other parents, especially for "those who like that sort of thing," and particularly for teachers.

But Mr. Crane not only held the belief that an interest in nature was good for everybody, but he put that belief into practice to the extent, it is said, of about half a million dollars.

Mr. Zenas Crane is not a specialist in nature studies, but is generally interested in nature and natural science. He is an efficient, successful business man, thoroughly understanding the needs of a business and of a community. It was, therefore, not to exploit a hobby but to educate and uplift the community that he established the museum. He has always felt that

the advancement of humanity depends to a great extent upon a knowledge of nature. It will be remembered that to him largely was due the success of Peary in discovering the North Pole.

Commander Peary, giving full credit to Mr. Crane for this aid, tells us that when he was almost discouraged, due to his disappointment in raising money for his last trip, and was about to

Other people may abstractly and theoretically know of the want, but Mr. Crane goes ahead and supplies it.

Everybody knows how great is the benefit of the American Museum of Natural History of New York to that metropolis, and to its many visitors, but forget that a smaller museum for a smaller place may be equally good. Who can tell why "words, words,



THE ARCHED ENTRANCE HAS ON EACH SIDE TWO FLUTED DORIC COLUMNS, WHICH CARRY A DECORATED ENTABLATURE.

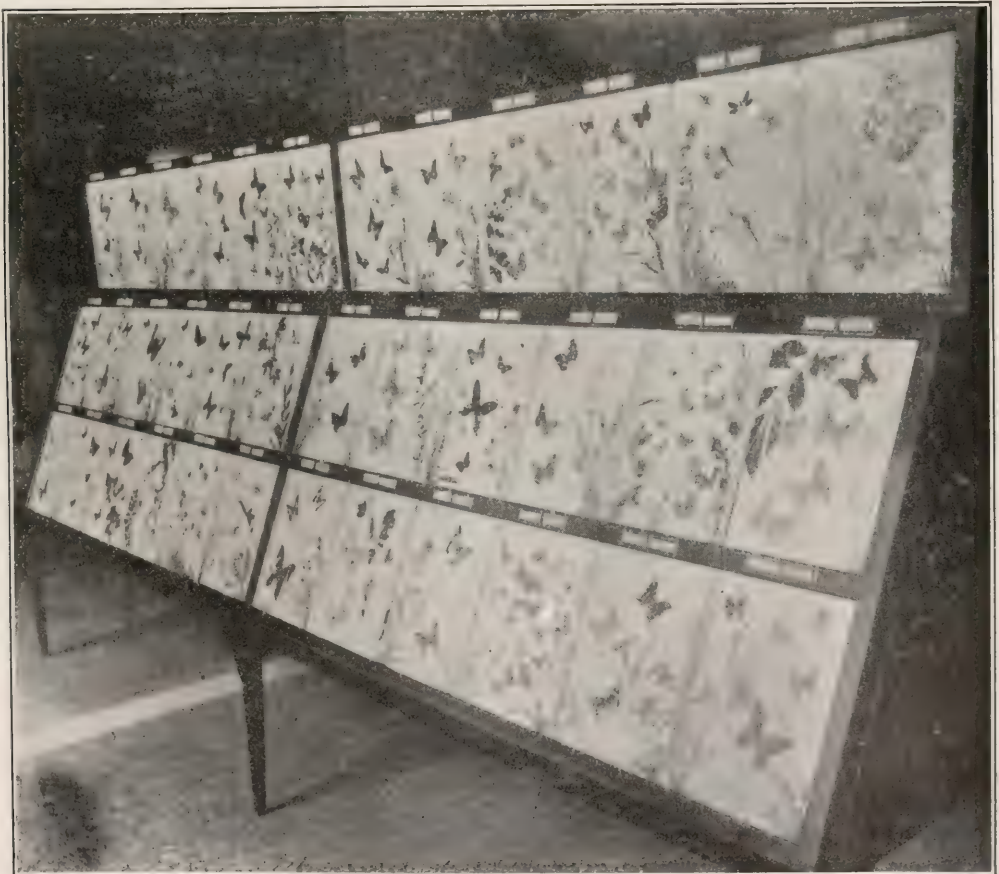
abandon the project, Mr. Crane, who had helped Peary on former expeditions and had faith in him, came forward now with a check for \$10,000. It was the hope and activity renewed by that money that found the Pole.

Mr. Crane thus had the knack of doing the right thing at the right time.

words" have always been more popular than things. Hundreds of towns have libraries where one has a museum. And of the few museums, far too many are wholly devoted to perpetuating memories of fights, strifes, bloodshed and agonies of death. But this museum at Pittsfield, which it was



A SECTION OF THE COLLECTION OF THE BIRDS OF PERKSHIRE COUNTY.



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COLLECTIONS OF SHELLS.



A DELIGHT FOR THE STUDENT OF MINERALS.



COUGAR AND YOUNG.



ROCKY MOUNTAIN GOATS.

All pictured on this page were secured by Mr. Marshall Crane, son of Zenas Crane.



SOME SPECIMENS OF THE SKILLFUL ART OF THE TAXIDERMIST.

my privilege and pleasure to visit recently with a camera, is devoted to peace—the beauties and interests of nature and art. It is right to take a few animal lives if thereby humanity shall be educated and uplifted. The butcher feeds our physical being; the taxidermist our mental. Both are right.

No elaborate catalogues with wearying details are supplied to the visitor at the Crane Museum. Objects with their brief labels tell the story. Things always present a clearer and more effective picture than words. So I shall attempt no elaborate description of the museum, but let my lenses bring to you the story of its most noticeable objects. Weeks and months of camera and notebook would not do justice to them all. In any department the most devoted student might come time and time again and still find material for thought.

If my selection of subjects shall be criticised by the donor of the museum, or by others familiar with its contents, as not the best for publication, then all I can say is without apology that I took the subjects that most interested me.

I went alone, yes, even in the hours



when the museum was closed to the public, and no one knew what I was photographing, and not even the curator or the donor knows what I am writing.

The museum was opened to the public April 1, 1903. More than seven years have told the wisdom of the investment and told it so effectively that recently there has been erected an



BIRDS FOR SYSTEMATIC STUDY, AND IN THEIR NATURAL ATTITUDES.

extensive addition. In all these years the collections have been rapidly increasing.

The building itself is extremely attractive and is an ornament to the city. The architectural style is known as Italian Renaissance. The main building is one hundred and fifty feet long and seventy feet deep. It is built of gray Roman stone. The purpose of the museum is educational.

The local collections in natural his-





HEAD OF ELEPHANT—"CHIEF."

tory are especially attractive and extensive. There are extensive cases devoted to birds, to wild flowers from the Berkshire hills, to geological specimens with their interesting developments in mineral forms, to collections of insects.

What a wonderful aid it would be to the real knowledge that should be imparted in the schools, if every town had such a supplement to its library, its public school, and, yes, to its churches. We teach the children about the coral islands and the length of Madagascar; we read of the Yosemite and of explorations in Africa; we eulogize the wonderful Works of the Creator, and sing of "the glorious firmament," when we are ignorant of the habits of a single plant or a single animal in the neighboring field, or the location and path of a star or a constellation in the heavens above. The human race began its knowledge of the natural world in its mythical astrology, and only in the last half century came down to earth in modern biology. Some day it will realize the



SHOWING EXTENSIVE ROWS OF CASES.



AN ATTRACTIVE END OF THE NEW ART GALLERY.



SOME CLASSIC AND BEAUTIFUL FIGURES.



THE WRESTLERS: AND A STUDY IN THE GALLERY OF PAINTINGS.

truth of what Louis Agassiz wrote in a Museum Report:

"If I mistake not, the great object of our museums should be to exhibit the whole animal kingdom as a manifestation of the Supreme intellect. Scientific investigation in our day should be inspired by a purpose as animating to the general sympathy, as was the religious zeal which built the Cathedral of Cologne or the Basilica of St. Peter's. The time is passed when men expressed their deepest convictions by these wonderful and beautiful religious edifices; but it is my hope to see, with the progress of intellectual culture, a structure arise among us which may be a temple of the revelations written in the material universe. If this be so, our buildings for such an object can never be too comprehensive, for they are to embrace the infinite work of Infinite Wisdom. They can never be too costly, so far as cost secures permanence and solidity, for they are to contain the most instructive documents of Omnipotence."

The building of this museum has evidently been inspired by such "a purpose," and is "a temple of the revelations written in the material universe."



THE LOST PLEIAD.
WONDERFULLY SKILLED AND BEAUTIFUL
WORK IN MARBLE.



SOME TOKENS OF APPRECIATION FROM PEARY.



Evening Sky Map for October.

BY PROF. ALFRED MITCHELL, OF COLUMBIA UNIVERSITY.

Those of us who live in large cities realize how difficult it is to follow our favorite pastime of watching the stars. The tall buildings forming the "sky-line" of New York, so interesting to see from the harbor, decrease to such an extent the line of the sky visible that a resident of Manhattan can observe the heavenly bodies only when they are comparatively near the zenith. In addition, the street lights shining on the dust of the city illuminates the sky so that we can view only the moon, planets and brighter stars. The people of Chicago or Pittsburgh are not better situated, for if their buildings are not so high, their atmospheres (from the use of soft coal), however, are not so clear. The vast majority of the readers of these lines do not live in large cities, and consequently they are able to watch the skies, which in the early evenings at this time of year are probably more interesting than at any other season of the year.

Those who watch the rising of the moon in these early fall months cannot but help notice the difference which years and years ago caused the pious farmers to thank the all-wise Creator for causing the full moon to rise at nearly the same time for several nights in succession, thus giving additional light for harvesting the crops. The Harvest Moon is the full moon which falls nearest the Autumnal Equinox, and in 1910, occurred on September 18. The Hunter's Moon is in the following month, and comes on October 18.

It is surprising that so few people know the exact cause of these peculiarities of the moon; but a little

thought will readily explain them. As everyone knows, the moon is moving eastwards in her orbit round the earth, and consequently rises later each night. On the average this amounts to about fifty minutes. By consulting any "patent medicine" almanac, however, it will be seen at a glance that the moon does not rise each night fifty minutes later, but that the intervals between successive nights vary enormously at different times of the month. A similar feature is also seen in the times of sunrise caused by the sun apparently moving once a year about the earth in the ecliptic, inclined $23\frac{1}{2}$ degrees to the equator. The variation in the times of sunrise and sunset, and the march of the seasons in consequence, we are all familiar with.

The moon revolves about the earth nearly in the plane of the ecliptic also, the time of her revolution is a month and not a year, and so each month goes through her variation of rising and setting, as can be seen by consulting the afore-mentioned almanac. In each month there is a least variation in the time of moonrise; but only in the autumn months does this come near the time of full moon. As we ordinarily notice the time of rising of the moon, only when it is near the full—when it rises at sunset—the Harvest Moon, before the days of congested rural life and electric lights, came to be a marked phenomenon.

But not only does the Harvest and Hunter's moons rise at nearly the same hours for several nights, but they rise farther and farther north of east. The reasons may be visualized with great readiness by getting a hollow rubber ball three inches in diameter and sticking a knitting needle through it. Mark

on it two circles one half-way between the points where the needle pierces the ball, which we will call the equator. Now make the second circle run completely around the ball and inclined to the first by $23\frac{1}{2}^\circ$. This will represent the ecliptic, the path of the sun and the approximate path of the moon. The two circles intersect in two points, the equinoxes. Represent the position of the moon each night by marking off

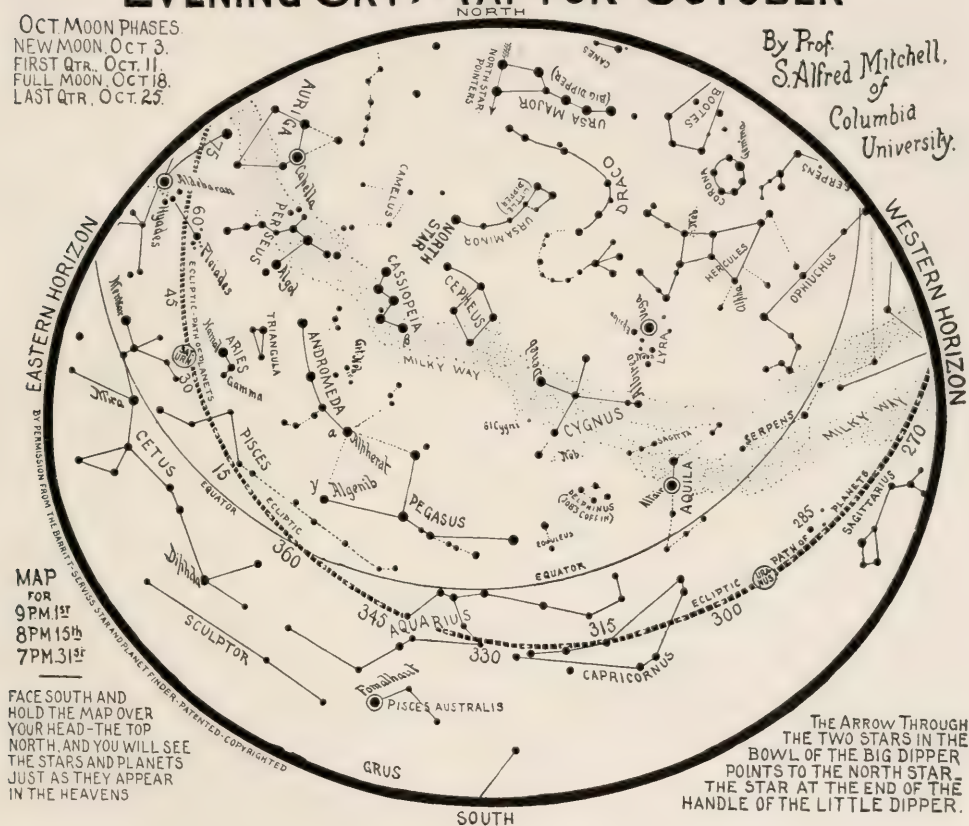
about the knitting needle by means of the fingers, making the ball move from east to west, and we have there represented the revolving heavens. The sun and moon both move along the ecliptic from west to east, and going in this direction round this circle, the point where the ecliptic goes below the equator marks the autumnal equinox.

Revolve the ball slowly and notice the varying angle which the ecliptic

EVENING SKY MAP FOR OCTOBER

OCT. MOON PHASES
NEW MOON, OCT. 3.
FIRST QTR., OCT. 11.
FULL MOON, OCT. 18.
LAST QTR., OCT. 25.

By Prof.
S. Alfred Mitchell,
of
Columbia
University.



points on the ecliptic five-eighths of an inch apart, beginning at one of the equinoxes. Immerse the ball in a pail of water with the knitting needle pointing north. The surface of the water will represent the horizon. The angle between the needle and water should be the latitude of the place of observation, but for this experiment any angle near this will answer. Twirl the ball

makes with the surface of the water, paying particular attention to the east side of the ball. If the autumnal equinox is in the eastern horizon, it is seen that the ecliptic is inclined at but a small angle to the horizon, and that it requires but a very small turn of the ball to bring the moon in its several positions near the equinox, successively above the horizon. This will explain

clearly why the moons near the full in September and October rise at nearly the same time, and why each night they rise farther and farther north. The northward risings may be seen by referring to the Sky Map which is merely the projection on a plane of the celestial sphere. The equator cuts the horizon at the east and west points. By looking at the maps of August, September and October it will be seen that the ecliptic cuts the eastern horizon at very different points, in the latter months, far north of east.

THE CONSTELLATIONS.

The average astronomer in the summer looks forward to the clear, crisp evenings of early fall when the absence of summer haze makes each star stand out "like a diamond in the sky." The Pleiades and Hyades and later in the night Orion give sure evidence that winter is approaching. These clear nights we are now getting make a splendid opportunity to study the constellation before the cold nights of the winter come along. Our old friend the "Dipper" is low down on the horizon. Everyone knows the two "pointers" in the bowl of the "Dipper" which indicate the position of Polaris, the Pole Star. On the other side of the pole from Ursa Major is Cassiopeia, the "W" or the Key in the sky. These two constellations found, we have the means of tracing an interesting line of stars. The star where the bowl of the Dipper joins the handle is Delta Ursae Majoris, the faintest star of the seven. A great circle through this and the Pole Star passes 32° away, close to Beta Cassiopeiae at the western end of the constellation. Following this line farther along we come to two stars in the Square of Pegasus, the first of these 30° away from Beta Cassiopeiae is known under the several names of Alpheratz, Alpha Andromedae and Delta Pegasi. From Alpheratz to the second star in the Square, Gamma Pegasi or Algenib, the distance is 14° . The same great circle which has passed near the above bright stars, and continued south for another 14°

passes through the "First of Aries," the important point in the "Greenwich of the sky," the intersection of the equator and ecliptic, the Vernal Equinox. No bright stars are near to mark this fundamental point, and though called the first in the sign of Aries, it is situated in the constellation of Pisces.

West of the Square of Pegasus we see a small diamond-shaped constellation in Delphinus known as Job's Coffin. The great winged horse Pegasus has close to it the Foal or Equuleus, a small and insignificant constellation. Half way between Delphinus and Lyra we come to Albireo or Beta Cygni in the Northern Cross or Swan. This is one of the most beautiful doubles known, and is a splendid object for small telescopes, which split it up into a third and a seventh magnitude star, $34''$ apart, the former light yellow, the latter deep blue. The contrast of color is beautiful.

Another famous star in this same constellation is 61 Cygni, a double star with components of the sixth magnitude $20''$ apart, easily separated by a small telescope. It has a large parallax of about $0.4''$, and is one of the nearest stars in the northern heavens.

THE PLANETS.

Few of the planets can be seen this month, Venus, Mars and Jupiter all being too close to the sun, and Mercury reaches an unfavorable opposition on the eleventh.

Saturn, however, is in a splendid position to be seen. It is in opposition, or 180° away from the sun on the twenty-sixth of the month. A possessor of a four-inch telescope writes that he can see the division between the rings. On the fifteenth of the month it is on the meridian at 12.36. It can easily be located, the brightest star east of the meridian in the evening.

Uranus, though low down towards the southern horizon, can be located from its position given on the Sky Map. It is at quadrature or 90° from the sun on the fifteenth of the month.

DOMINION OVER PHYSICAL NATURE

Flying Machines Made by Boys.

A part of the course of study in the New York City public schools is the study of the atmosphere. The boys of Public School Seventy-seven, Manhattan, under the supervision of their instructor, Mr. A. E. Horn, performed some experiments with kites to determine the velocity of air currents and the pressure of the atmosphere thousands of feet in the air.

These boys soon made kites of all kinds, both for amusement and experiment—tailless kites, French and English war kites, Eddy kites and the box or Hargrave variety. Their alert minds, however, soon suggested that they do away with the expensive cord; but the kite would not fly, or at any rate it would fly only with the wind and not in the direction they wished.

Again they consulted their instructor, and he suggested a propeller driven by some motive power such as rubber bands. The boys adopted this suggestion and the model aeroplane was born. Do not imagine that the first one was successful. Some of the boys built as many as eight or nine before they could make them fly. They learned all about such difficult problems as balance, the pitch of the propeller, aero curves, warped wing tips, etc.

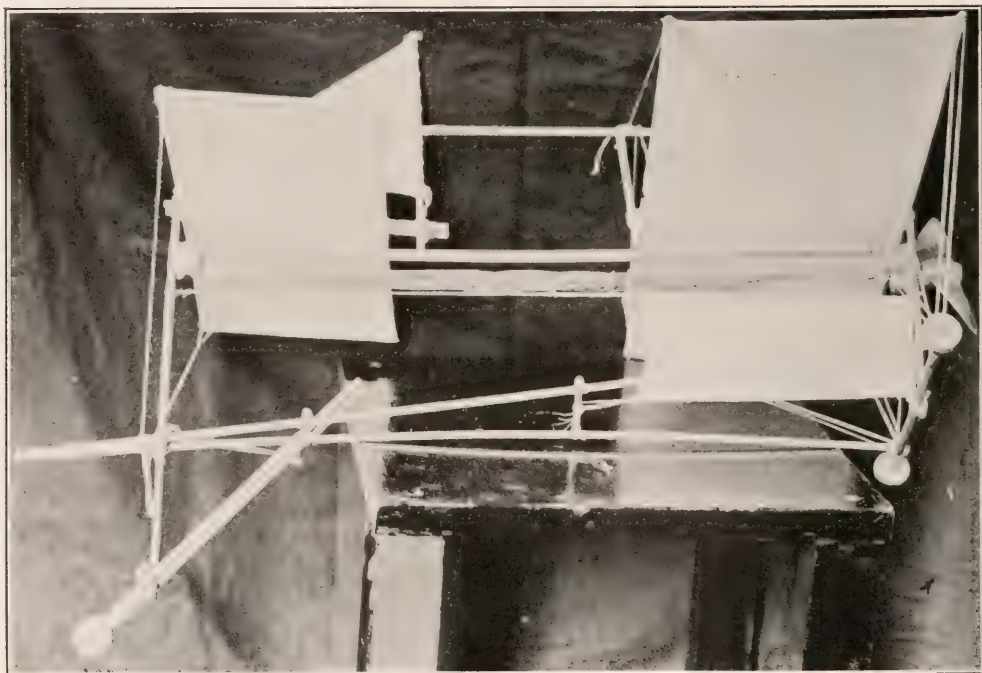
When about thirty boys had built aeroplanes that flew—monoplanes and biplanes and 'planes that surpass description—a contest was held in the yard of the school to see which 'plane would fly the farthest. A gold pin was awarded the winner.



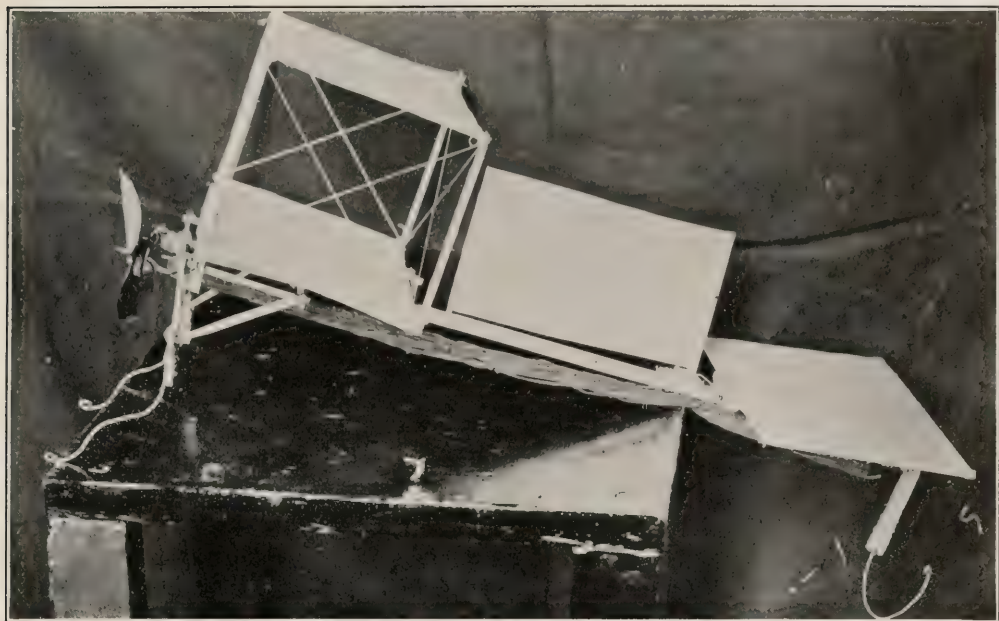
LEARNING HOW TO USE TOOLS IN MAKING "FLYING MACHINES."



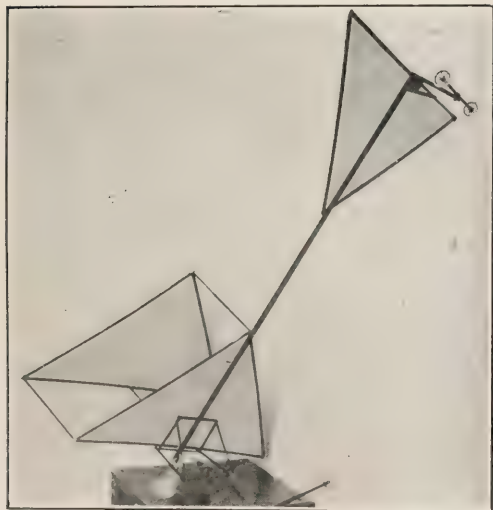
READY FOR A COMPETITIVE "FLIGHT."



ONE OF THE LARGER, WELL MADE MACHINES.



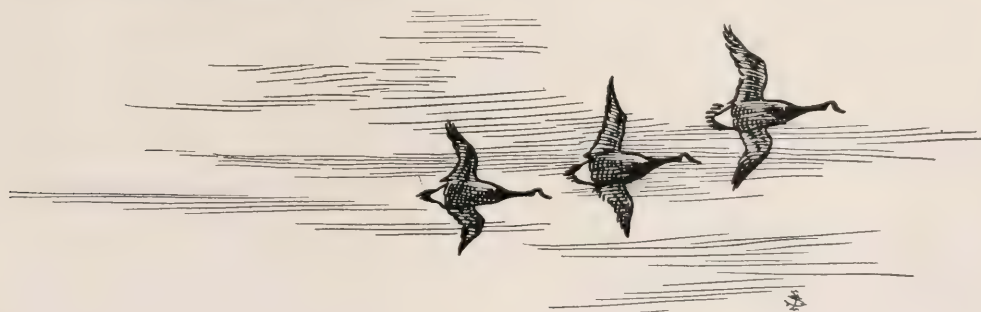
INGENIOUS "PLANES" WITH REAR BOX-KITE ARRANGEMENT.

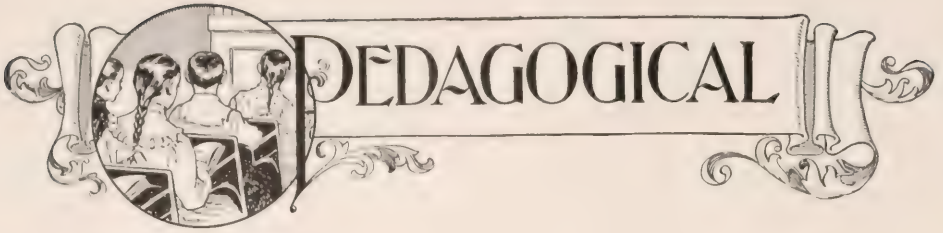


A VERY NEAT DESIGN, WELL WORKED OUT. "carrying glider."

All the boys are now members of the Junior Aeronautic Society of America which has many hundreds of members. The boys of the Juvenile Aerial of England are also building aeroplanes, and Mr. Horn is arranging for an international contest.

The boys do all their work after three o'clock in the afternoon. They have copied all the known models of aeroplanes. The meetings of the Junior Aeronautic Society of Public School Seventy-seven are held every Thursday, when each boy reports on anything new he has discovered or learned. Mr. Horn also lectures to them. Model aeroplane contests are held every Friday. They soon expect to build a man-carrying glider.





Nature Study in the Connecticut Schools.

BY FREEMAN FOSTER BURR, DEPARTMENT OF SCIENCE, STATE NORMAL SCHOOL, NEW HAVEN, CONNECTICUT.

(Extracts from a reply to a personal letter of inquiry regarding the interest of Connecticut teachers in "nature study.")

With regard to Connecticut teachers it must be pointed out that there are strong reasons for marked differences between our State and some others with respect to school conditions, particularly in those schools which are below the High School grade.

Our State is, as everybody knows, a manufacturing state, with population concentrated in cities and large, busy towns; the predominance of the manufacturing and commercial interests must of course have a very strong effect on the trend of education. Our two largest Normal Schools, the one at New Britain and this one, draw the majority of their pupils from such communities (in our own case, only about fourteen per cent can be said to have received any considerable part of their early training on farms or in country places), and most of these pupils (in our case over sixty per cent at least) go to teach in the large places after graduation. So large is the demand for teachers, and so strong is the desire of the average trained teachers to get into a town or city school, that even in small places bordering on a city like New Haven superintendents are obliged to hire many teachers who have not, at the most, gone beyond the High School, and who are absolutely without special training (and it might be added, in a great many cases, without special apti-

tude). Throughout the rural parts of Connecticut, it is easy to find plenty of schools taught by teachers of just this sort. The difficulties in the way of reaching such teachers in connection with such a thing as nature study must be apparent. It must also be apparent that such teachers will not compare favorably, on the whole, with teachers who have had some training in doing things of the schoolroom, even though special aptitude may be lacking in the cases of the latter.

It is hard to get satisfactory nature study work even from those who have the advantages of training, because of the prevalent lack of outdoor observational experience in the early years when such experience would sink deep and form a basis for future tastes and habits. Among all the girls who come to this school, it is a rare thing to find one who has any real, deep, lasting fondness for things of the woods and fields. We are told that we need only to send enthusiastic teachers into the schools to have nature study taught, and taught well. And many of us fail to realize that it is just this obvious key to the situation that is hard to attain; we do merely need enthusiastic teachers, but true enthusiasm is possible on no other basis than that of knowledge. And the hard part of it is, the time when knowledge of this sort might have been easily and pleasantly obtained is long past when those who are to be teachers have come under our control. It is hard to get good nature study teachers because we cannot begin early enough with their training; when we get hold of them, in the High schools and the Normal Schools, there are so many other things to be done that it is only incidentally that a pupil becomes in-

terested in anything connected with nature.

Then, too, a thing we nature people are more than prone to overlook, there are many things besides nature that must be attended to in school. Writing, reading, figuring, map study and spelling are not incidentals; they are essentials, and many, many teachers, even good ones, have nearly all they can do to give proper attention to these, particularly in ungraded schools, of which there are many in the state, where the teacher has to work out a programme for the ordinary routine of the school work that would prove a pretty hard task for some of us who are so ready to force upon her work for which she is fitted neither by inclination nor training. I have seen programmes for nature study that would actually bar out of the curriculum much that is absolutely essential in order that a child may gain the ability to keep a proper place in the community. We must not simply be distrustful of this sort of thing; we must prevent it. It is a thing we hate to acknowledge, those of us who would prefer to spend our days in the fields; but it is none the less true that for a vast majority of the children of a state like this, nature study must be, in quantity at least, a minor matter. Indirectly, and by pervading, in a certain restricted sense, a large part of the school work, it may be made to have tremendous value and influence; it may serve as the leaven in the lump; but we must remember that without the major ingredients no leaven would be needed.

One thing I must mention as standing against change with us; that is, tradition, that ancient stumbling block of progress. From our schools have arisen men and women in countless numbers who have done work that needed to be done for the country and the world. In far greater proportion than in newer parts of the country, these have seemed in large measure to be a product of our schools. It is easy for educational people in a new country, where nothing has been tried, to veer and turn in all directions, and to sneer at those who hold steadily to a course. It is hard for us to change

from a course prescribed by traditions that have so much to make them sacred. Rightly or wrongly, we cling to the old, and look askance at the new, because we have accomplished, and are accomplishing, positive things, and we hesitate to step out on uncertain ground. It is an interesting, and a significant thing, that in the south, where a rapid upbuilding of school systems is going on, they rely upon Connecticut and other parts of New England for example and inspiration in their work.

Now, having said all this, let me add, although it may imply an apparent contradiction, that I am as firmly convinced as you can be that nature study is important and valuable, and that it does not hold the place it should hold in our schools. I am an ardent out-of-door man myself; and I would certainly bring the out-of-doors into the schoolroom, and the schoolroom out-of-doors, to any extent possible. I know, however, that in the case of the greater part of the teachers in our common schools, they must be told, in this connection, exactly what to teach and when to teach it. You are exactly right in implying that materials are what we want, and that generalities are of practically no value at all.

Nature Study.

BY W. H. WISMAN, NEW PARIS, O.

Oh, for the boy who loves the charm
Of strolling idly arm in arm
Around the woodland's solitude,
With Nature in her sweetest mood;
Who is content to sit and dream,
Beside the silvery, rippling stream,
Or watch the stars that stud the sky,
Like gems in Heaven's canopy.

Oh, for the girl who longs to know
How trees and flowers and grasses grow;
Who is content, hour after hour,
To sit and watch the opening flower;
Who starts not at the pheasant's whirr,
Hears music in the cricket's chirr,
Finds beauty to her soul's content,
Along the sunset firmament.

'Tis these who cannot fail to wrest
From out old Mother Nature's breast
The key that will unlock her doors,
And thus reveal her hidden stores
Of wonders that we all may learn,
If we with patience to her turn,
Climb trustingly upon her knees,
And delve into her mysteries.

SEEING BY AID OF THE LENS



One Diatom.

BY I. ELENA C. ROHRBACHER, SEATTLE,
WASH.

We of the Northwest, never weary of praising our glorious mountains and their glacial systems; our beautiful lakes, our majestic rivers; our unparalleled forests, our strange and magnificent fauna; and our wonderful and varied flora. We all know that it is the naturalist's paradise. But we do not so often hear, that it is also, an unequalled treasure store of beauty for the microscopist.

Some of you, may have seen, during your seashore visits, a young-great-bearded gentleman in his eighties, slowly walking along the beach. If your eyes continued to follow him, you probably saw him stoop to pick up a piece of dried kelp, which had been thrown up by the tide. Then he examined it with his magnifying glass. The glass might have revealed an incrustation of tiny shells, which the unaided eye could not discover. Attractive as these are, and they are as beautiful as larger shells gathered with such care, they are not what he is searching for, and the specimen is thrown aside. Another one is examined. This pleases better. What the glass reveals is a finer incrustation than the other—of very minute discs. These disc are the siliceous skeletons of a species of algae, of the order Diatomaceae, and known to diatomists as *Arachnoidiscus*. This is what our naturalist was searching for. He will take this bit of kelp to his laboratory, and through a long and patient process, he will separate the discs from the kelp, and by boiling them in acids, will remove all vege-

table, or other foreign matter. Then he will place a tiny bit of the cleaned diatoms under his compound microscope, and if he finds a number of complete, unbroken specimens, he will feel amply repaid for all his trouble.

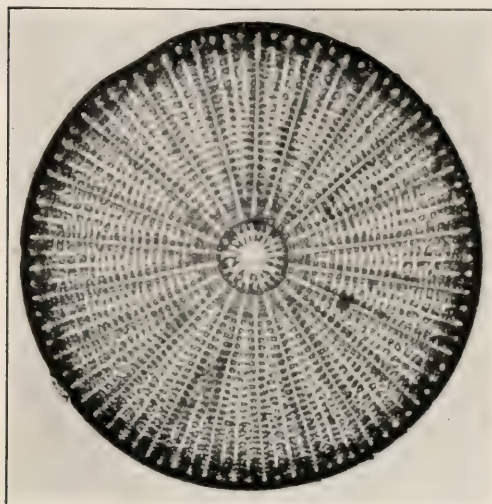
May I try to describe this one form of beauty which so abounds in Puget Sound, and which our friend was looking for so diligently? I use the word "try" advisedly, for no verbal description could convey an adequate idea of the exquisite, dainty, fairy-like beauty, which, when we walk on the beach, we thoughtlessly tread under foot, in countless millions.

In searching for some figure of comparison, two come to my mind. First, a cut-glass, flat plate. Not that it is like any cut-glass plate that we have ever seen, but because it is glass, it is a disc, and it is ornamented with a pattern, that looks as if it might have been cut with the most perfect instruments, and by the most conscientiously precise operator.

The other figure is the web of the wheel spider, threaded with the night mist, and glowing in the morning sun, with a thousand prismatic hues. This latter figure is so true to its appearance, it has given the diatom its generic name, *arachnoidiscus*.

Were the diatom as ethereal, and so easily destroyed as the spider web, I should not need to use my first figure, the cut-glass plate. But Diatomaceae are composed of pure silica, or, in other words, glass, without the manufacturer's adulterations, and untold numbers, in periods to long to read, endure in perfect form, through geologic ages. Therefore I will begin my description with the imagined plate.

In the center of the plate is a circular space, outlined with oblong markings, with rounded corners. The axis of these figures are meridional; that is the length lies pointing to center and circumference. In the specimen now focused under my microscope, there are thirty-eight of these oblong figures. This is the beginning of the spider-



web design, which works out towards the margin of the disc.

At the end of each oblong mark, and at a harmonious distance from it, is a dot, a little longer than it is broad, and with rounded corners. In the spaces between these dots, start the rays which correspond to the staying threads of the spider's web. These rays project to near the margin of the disc. It is apparent that the spaces between the rays where they end near the margin of the disc, are much wider than where they begin near the center. We find this greater width subdivided into halves, by rays running from near the margin, to about half way to the center. And these halves are in turn subdivided by other rays running but a short distance from margin toward center. This arrangement of the rays permits the filling of the spaces between them, with lines of dots, smaller than those mentioned before, and equally spaced in orderly precision, ceasing in equi-distance with the rays, from the margin. The effect, as these

lines of dots break up the white rays of light into prismatic hues, is like the mist strung spider's web, when the morning sun lights the tiny globules of water. The margin of the disc, is fretted similar to the edge of a milled coin.

I chose this one of the many beautiful forms of microscopic life of the Pacific Northwest, because it is the most easily described. There are many others, equally charming in detail, of which I should not know where or how to begin a description, so complicated is the form and ornamentation.

There are no diatoms that are not beautiful, in all the three thousand different forms. The higher the magnification, the greater the detail. It can scarcely be imagined what would astonish our vision, were a still higher magnification possible, for each succeeding increase of magnifying power brings to view some new and wonderful detail.

Katydid.

BY ADDISON ELLSWORTH, BINGHAMTON,
NEW YORK.

Bidding farewell to the waning day,

The twinkling stars shone out, one by one,
Casting weird shadows across my pathway,
As alone I strolled at setting sun,
Through meadow lanes, past a wimpling
brook,

Beside gloomy woods where wild birds
hid,
When suddenly from some quiet, wayside
nook,

Arose the cry: "Katydid, Katydid!"

All else was still, no other sounds were
heard

Save the brook's murmuring, mirthfully,
And rustling grass, by gentle zephyrs
stirred,

While the only sign of life I could see
Were the tiny lamps of the fireflies,
Darting here and there, as by fancy bid,
When from the unseen pixies again did rise
The plaintive cry: "Katydid, she did!"

Ah, charming Katy! She could do no
wrong,

You must have made some mistake about
it,

Her heart is always so full of song,

We cannot for a moment doubt it:

So pray tell me what it was that Katy did,
Shy little elf, and why did she do it.

The answer came back: "Katydid, she did!"

And I guess that's all there is to it.

THE CAMERA



Photographing Clouds.

BY WILSON A. BENTLEY, JERICHO,
VERMONT.

The clouds! How beautiful and varied they are, and what infinite diversity they impart to the blue vault of the sky.

We find among the charming cloud forms something distinctive for every season and for every mood of nature. The stern skies of winter are hardly less embellished by these beautiful evanescent forms than are the soft skies of summer. We hardly have to use our imaginative faculties to perceive that there are angry looking clouds, and that there are others that seem to smile upon us. Placidity, calmness, gorgeousness, agitation, sternness, imperiousness, menace, seem at one time and another to be expressed by their forms and aspect. Yet how few people there are who really observe and admire and study them un-

derstandingly, and as they should be, and according to the all-important part they play in nature's plan. Yet to some, and it is to be hoped an ever-increasing number, they are a source of pure and never ending delight through all the changing seasons.

The artist sees in them forms and exquisite colorings which, if transplanted to his canvasses, will add vastly to their artistic merit. Hence they try, though vain the task, to catch the evanescent tints and forms of these sky masterpieces wrought in vapour. The photographer also sees in them that which may add much to the beauty and value of his pictures of land forms, architecture, etc.

But the pure lover of nature for nature's sake alone, the poet and dreamer of daydreams, sees among these cloud legions, wrought by the magic of the mists, glories without number, strangely beautiful or fantas-



WHAT BETTER VARIETY FOR THE CAMERA THAN THE TOWERING "THUNDERHEADS."



A DAINTY VISTA, AND A CURIOUS CAPPING.

tic in shape, mountains of gold and silver, Alpine peaks tipped with perpetual snow, and other unreal yet glorious dream shapes such as only poets and dreamers see.

It is meet that those of us who love the clouds should view and study them according to our nature and view point. Yet the writer would fain have a larger number study and enjoy them in a broader and more understanding light. For they are much more than merely beautiful objects. They comprise a phenomenon of wondrous interest, well worthy the attention and study of the scientist and philosopher. Many of them, by their forms and aspect, etc., tell a most wonderful story of the state of the aerial ocean wherein they exist, and of the changes going on from hour to hour therein.

To the cloud lover, especially, who is photographically inclined, the clouds are an especial delight. For the modern color screen and ortho-chromatic plate now make it easy to secure exact and exquisite likenesses of their beautiful forms and shadings. A more delightful task can hardly be conceived than the one of watching out for the oftentimes brief yet choicer moments, when the cloud hosts arrange themselves in most exquisite or grand array, or present to us some peculiar aspect or rare cloud form which we have long sought for in vain.

Tastes may and should differ as to what cloud forms should claim our photographic efforts. But to the writer the photographing of the large mountainous looking clouds called cumulus and the cumulo-nimbus, or so-called thunderheads, is an especial delight. How beautiful and majestic, how solid and truly mountain-like these mighty piles of vapour seem. Pile above pile, buttressed from below, they sweep upward in sublime array, piercing the empyrean blue to frigid heights, their tops literally (and truly) sprinkled with glittering snow. Gigantic piles of vapour these truly are, oftentimes with a vertical depth of miles, and a horizontal one of tens of miles. One should try, in picturing cloud scenes of this description, to introduce a little of the scientific spirit into one's photographic efforts, so as to secure, if possible, a series of views picturing the life history of given cloud forms. For it oftentimes happens that one may see the birth and growth of a shower, the transformation of a cumulus cloud upward into a cumulo-nimbus or rain cloud. More rarely it will be our fortune to witness not only a shower's birth and growth, but to trace it further through stages of decay and dissolution, for it sometimes happens that the upward rush of the columns of air, which really constitutes a shower, for some reason ceases. We can then see

the decay of such a cloud, beginning from below, and see the basal portion gradually fade away, until at last only a tangle of the high summit, cirrus (snow cloud), portion, overhanging the former cumulus portion, remains as a witness of the previous existence of a shower, of this preeminently interesting phenomenon of cloudland.

How few there are who know that, in general, the wispy, lace-like cirrus, the highest of all the clouds, originates in this most interesting way, above showers and general storms. Other cloud forms are scarcely less interesting in the manner of their formation and dissolution. The lofty, fleecy cirro-cumulus, the so-called cap cloud, the fair weather cumulus, the more somber stratus and nimbus, the hurrying scud cloud, even the bands of fog cloud drawn veil-like, perhaps, across the mountain flanks, each have a charm of their own and a most interesting history. Surely we can find inspiration and delight in looking up, in viewing the ever changing panorama of cloudland.

One who loves and derives keen enjoyment from them cannot but feel a

keen regret that so many travel life's pathway with unseeing eyes, with never an appreciative look upward at the glories there revealed.

May the time hasten on when people in general will all be "weather wise," and lovers of the beautiful in cloud and mist land.

Additional Examples of Photographic Deception.

BY EDWARD F. BIGELOW, ARCADIA, SOUND BEACH, CONN.

The publication, in our September number, of the article entitled "Some Commendable Frauds," with sample photographs, has brought so many interested inquiries and favorable comments upon the character of this very skillful work that we have decided to publish more.

In their line, these photographs are masterpieces. Nothing similar and nothing nearly so good has reached our desk. We do not know whether these were made by the time-honored process of patching together various photographs under different degrees of enlargement; but we do know that,



NO. 7—"EVEN THE POULTRY FANCIER HAS BEEN KNOWN TO EXAGGERATE."



NO. 8—THE GREAT POWER OF A GROWING PUMPKIN!

even under careful examination with the microscope, they show no traces of such pasting or patching.

And the result is so natural, and carries so impressive a lesson in the telling of "big stories," that the pictures are not only interesting in themselves, but they convey considerable moral instruction.

It is not only fishermen who tell big stories. Even the poultry fancier has been known to exaggerate the number of eggs obtained in one year from his prize winner. And where is the farmer who does not like to convey the impression, even if he does not say that no other person on earth can equal him in the raising of pumpkins, tomatoes, potatoes, peaches, or pigs? We have therefore selected from an extensive supply of these postal cards a few that, photographically, are no better than the others, but that most successfully convey this impression of exaggeration. One of the best methods of curing the willful deception is to make it ludicrous. It was Ruskin who said, "It is a rare ability to see a thing clearly and to describe it correctly." It is the purpose of this magazine to

develop and stimulate that clear sight and correct description. We all have heard of the small boy who rushed into the house one dark evening and explained to his grandmother that there were a thousand black cats in the back yard. The good lady gently reproved the youngster, who cut his story in half by insisting that there were five hundred. After a few more reproofs, which gradually reduced the number, the boy in a fit of desperation, stoutly maintained that there were at least their old cat and a neighbor's.

This boy is but a type of the spirit of exaggeration so commonly current. Every editor realizes, by, alas, many a serious error unnoticed by the blue pencil, that David was right when he said in his heart, "All men are liars,"—although David should not have limited it to the men.

We have two motives for publishing these interesting photographs: first, they have artistic merit, and are examples of photographic skill; and, second, they are the best examples of the common tendency to exaggerate that we have ever seen. Every botanist knows the power of a growing



NO. 9—THE FEW POTATOES WERE TOO MUCH FOR THE WAGON.

plant to overcome an obstacle. A growing pumpkin has been known to lift and support a ton, and we are all familiar with the tilting of a flagstone

in the sidewalk by the root of a tree. But we should like to see a photograph of a pumpkin lifting a house, as well as to hear the story. But when



NO. 10—TOMATOES ARE THE CHIEF INDUSTRY OF THIS TOWN.



NO. 11—WHAT MUST THE TREES HAVE BEEN!

a farmer, sitting on a barrel at the village store, waxes enthusiastic over the crops that he, unlike any other farmer in his vicinity, has produced, show him

these illustrations of potatoes, tomatoes and peaches, and he will be abashed, unless he is a practical photographer, or unless he is a reader of

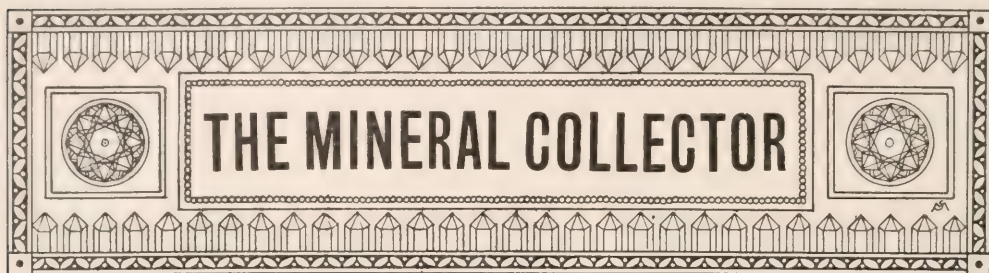


NO. 12—JUST "TO CALL DOWN SOME SPORTSMAN."

THE GUIDE TO NATURE and has been properly instructed by this magazine.

To call down some sportsman who tells of the wonderful excitement of the chase that took place only in his own imaginative brain, bring out the illustration of the three automobiles in pursuit of the rabbit, and gently remark: "You had an exciting time but it was not at all equal to the way in which I ran down a bunny and captured him with a cowboy's lasso."

So, for the lesson that they convey, publishing these pictures is, we believe, promoting the cause "of things as they are." We have decided to supply these postal cards. Order by number either from this or the September issue, and they will be sent—one postpaid, for five cents, or six for twenty-five cents. We can also send at the same price others equally good, the selection to be left to us.



Address all correspondence to Arthur Chamberlain, Editor, 56 Hamilton Place, New York City

The Pennsylvania Railroad Tunnels in New York.

BY MAURICE BLUMENTHAL, LOCKPORT,
NEW YORK.

Through the excavation and construction of the Manhattan crosstown tunnels, running parallel about 80 feet under Thirty-second and Thirty-third streets, from the East River west to Seventh avenue, New York City, by the United Engineering and Contracting Company of New York, I have been afforded the splendid opportunity of seeing the rock structure of the great metropolis and all the minerals found therein. This should be of special value and interest to collectors and students.

The rock through which these monster twin tunnels (40 feet wide and 20 feet high) was bored is gneiss. The Island of Manhattan is composed and built on this same rock, from the Battery to the Bronx.

The work, drilling and blasting, was carried on day and night. Whenever in the tunnels, after a blast, would search the "muck" for specimen. The following, although concise, form the essence of my mineral finds, covering

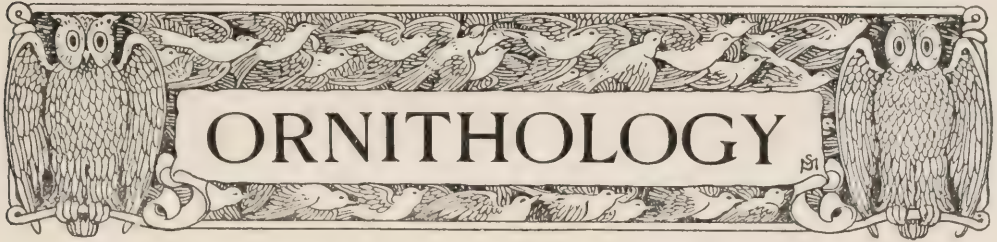
a period of three years, viz.: mica (in large plates and crystals), orthoclase (pink, red and pearly white), plagioclase, kaolin (decomposed feldspar), yellow ochre, chlorite, talc, steatite, tremolite, apatite (small crystals), stillbite (dark yellow), heulandite (fine crystals, yellow and brown), tourmaline (black only, slender crystals, up to several inches in length), calcite crystals, quartz, iron pyrites, staurolite, small crystals and garnets. Some of the garnets were of good color and size. Molybdenite was also encountered, but very sparingly. Geodes are also rare in this rock, but several beauties were found (in places where the rock was wet and soft). A geode I found in the Thirty-second street tube, near Second avenue, measured almost two feet in width and a foot in height, lined with a layer of iron pyrites, a quarter of an inch thick. On the pyrites was a thin layer of calcite, and from this projected an abundance of beautiful dogtooth spar or calcite crystals of a light yellow hue. The cavity of a second geode was also lined with crystals of dogtooth spar, but all

the crystals were covered with tiny grains of iron pyrites, sparkling brilliantly, and looking like gold.

This rock is destitute of fossils.

Hope local collectors and students

will get busy. New York still offers a good field, with the excavations of its subways and deep cellars, and the opening of new streets in the Bronx now going on.



Physical Experiment by a Catbird.

BY HARRY A. JUDD, BRIDGEPORT, CONN.

Although we often read of the habits and antics of our feathered friends of the woods, yet we do not as often have an opportunity of observing them.

A short time ago, while out for an early evening stroll through the woods, the squawk of the catbird came floating over the meadows toward me, and a short search with the field glasses soon revealed the mouse-colored fellow. He was situated in the branches of a small chokecherry tree growing on the bank of a swiftly running stream not a great distance away.

I drew nearer and as I watched the bird gathering his evening meal I was vastly interested in his performance. Either experience or instinct had furnished him with the knowledge that the slender branches supporting the fruit were not strong enough to also support him, but would immediately sink beneath his weight, thus making it difficult to secure his food.

Therefore he had altered his plan of attack. Selecting the cherry most pleasing to his eye, he would flutter to a branch beneath it (one strong enough to hold him), and with a quick impulse throw himself upward toward the fruit. Once the choice morsel was well within his beak, he dropped—deliberately dropped—his wings fluttering and beating the air until the combined results of his weight and strength served to separate the fruit from the stalk.

This performance he repeated over and over again, with an appetite apparently insatiable. He was a pugilistic as well as a greedy fellow, as he proved by fighting off—between cherries—three other catbirds fully as large as himself, flying directly at them and menacing them with beak and claw as they sought to trespass upon his preserves.

My Downy Woodpeckers.

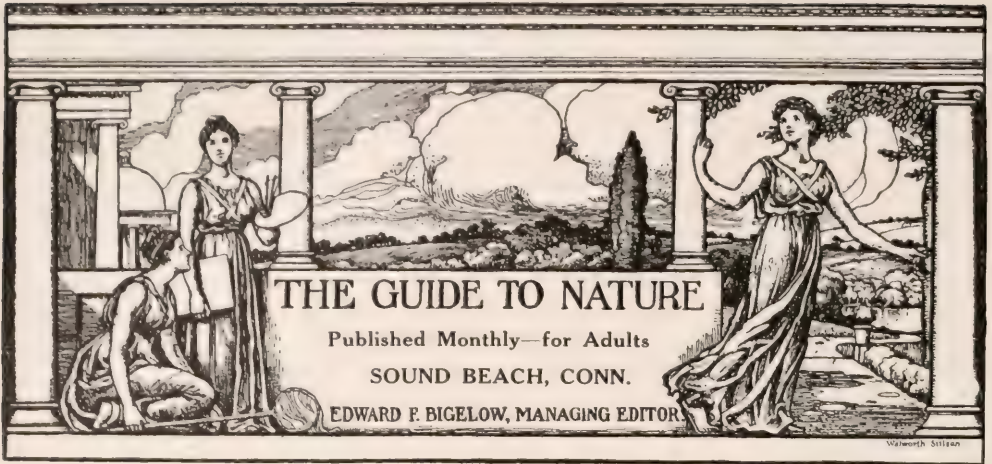
Brooklyn, New York.

To the Editor:—

I call them mine because I visited them so often. In Prospect Park, Brooklyn, I saw a pair making the the beginnings of a nest, and gathered some of their chips, as large as the end of my finger, which fell at the foot of the tree, some twenty feet below. After the nest was to all appearances completed, I made them a visit, but found no evidence that either Mr. or Mrs. Woodpecker were at home. After long and patient waiting, I decided to knock, so found a stone half the size of a hen's egg and tapped on the trunk of the great tree. Immediately Mrs. Woodpecker put her head and neck out of the door, scrutinizing me carefully, seeming to ask, "Did you want anything of me?" She did not retreat until after I left.

The last time I visited their home an English sparrow flew out of the door. I hope the rightful owners had no further use for their home.

CAROLINE M. HARTWELL.



“Practical” Suggestions—Wise and Otherwise.”

Occasionally suggestions have been made to us that our circulation might be increased if we should offer “practical” directions. We found, upon inquiry, that this advice contained a meaning of the word practical new to us. It meant how to make money. We had supposed that it was practical to accomplish the object sought, to attain to our point of view from which nature and the knowledge of nature appear to be an end in themselves. But not so, it has been argued, not only by our readers but by the editors of some other magazines by whom articles on nature have been returned because they were not “practical”; that is, they did not tell how to make money. And those fault-finding readers and editors are wise. They evidently voice a demand.

Thus we have published articles on pet rabbits and covies, honeybees, the raising of dahlias, peonies, orchids. The sin of omission appears to be that we supposed these things to be an end in themselves, and not to be done to “make money” with which to buy something else. We were hoping that we are right and must confess that we have not yet been convinced that we are wholly wrong to build up a magazine on nature for her own sake. But it appears, from the rapidly growing circulation and sumptuous pages of

those magazines devoted to the getting of money from suburbs, country and farm, that it pays to teach the “practical.” So, spirit of Huber, Jefferies and Thoreau, pardon us; we must lapse a little from the enjoyment of nature for its own sake and be “practical.”

\$\$ THE JOYS OF GOING NUTTING. \$\$

Now is the time to go nutting. Boys and girls in their leisure hours, men on Sundays when the factories and stores are closed, and women between the times of preparing the daily meals, should now go nutting. Let it be explained to you who have recently moved to the suburbs that nuts can now much better be gathered than in April. They bring a good price per bushel, and the demand has been increasing. Since Teddy went to Africa, more people are becoming vegetarians.

P. S.—Do not go nutting when you are working at something else. Remember the old adage—“One thing at a time.”

\$\$ RAISE CHICKENS—THE FLUFFY \$\$ DEARS.

A timely hint: borrow your sitting hen now. She may not be broody but she will be by next spring when you most need her. It is always best to plan things ahead. By the way, do not forget that you will need eggs when she wants to sit, but you cannot get them yet. They will not keep unless packed in salt. In case of short-

\$\$ KEEP RABBITS—"THE DEAR \$\$
THINGS."

SS UTILIZE LITTLE SPACES. SS

\$\$ PLANTING THE GARDEN. \$\$

P. S.—Do not forget that, if your vegetable man becomes overstocked, you can probably dispose of a few to your butcher. You will remember that some butchers do carry a few choice vegetables in their show window, especially those from your garden.

P. S. 2.—The price of vegetables is looking up at this time of year, and the joys of gardening are increasing. Is there anything more beautiful than Limas climbing poles in beautiful rows like this: \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$

§§ KEEPING A FEW BEES. §§

Every lover of suburbs and country should keep a few bees. If kept in the modern, neatly painted white hives, and placed in a picturesque corner of the garden, they will be a delight and add ten (10%) per cent to the selling price of your property—to the next one who wants to speculate in pastoral joys and profits. Do not forget when you advertise your place for sale to publish an illustration of that particular corner. The real estate agent says bees are very interesting and profitable.

You can get honey enough for your table, to give to your friends and to bottle and sell at the local stores—if you really enjoy the care of bees, and

can raise money enough to send West and buy a barrel full of honey. In the linden and raspberry territories it is sold in bulk very cheaply (good honey, too) and will delight your friends and the grocer. If you have sufficient of this honey, you can probably get from the grocer, without too big a check for the balance, enough granulated sugar to keep your bees from starvation during the winter. It is a great delight to "keep a few bees"—as many as one hundred and twenty-seven (127) in one hive, with the queen sometimes, in the spring (if you have fed persistently), and to harvest—a large number of stings. But it really does pay.

* * *

Moral—The delights of cash should not be polluted with any "nature for its own sake." Cash is really worth while in itself—our fraternal "practical" magazines and suggesting subscribers to the contrary, notwithstanding.

China Painting from Nature.

BY WM. D. DALGLEISH, GLENBROOK, CONN.

The more frequently one paints from nature, the sooner he will abandon "studies." Of course by studies I mean lithographic copies, which are all very well for the beginner who has little skill in drawing and so takes an outline transfer and fills it in with color, but this is not art nor will it develop

art. More than that, it takes away all ambition to become proficient in drawing. "What useless labor, what a loss of time, when all you need is a sheet of tracing paper and one of carbon," the amateur china painter says, and so keeps on for a while with his outlining and transferring, and then, becoming sated, abandons the pursuit, having thrown away money and valuable time with no adequate return.

If you want to paint china without losing interest, study nature, and if you have a love for art, that love will increase, and so will your skill, while as a pastime it can have no equal, always supposing that you are an admirer of art as well as of nature.

I would not suggest that you sit in a flower garden and try to paint it all, but that you select two or three flowers and paint them in the sunlight with a delicately tinted sky for a background—blue and grey or azure with sunlit clouds. Then again try landscapes and marine views. The painting of skies as pastime and practice combined will become most alluring. Having become proficient in skies try foliage and pasture and distant hills, or a rocky coast and a sandy beach with a sail to suggest distance. With perseverance one can do all these things and more. A great mistake is to think that it is possible to learn china painting in a certain number of lessons, because somebody's circular



SOME SPECIMENS OF CHINA DECORATION FROM NATURE.



FROM A PAINTING FROM NATURE.

says it is. If in doubt go to Tiffany's, and I think that after you have inspected their china you will change your mind. The men who painted that served a seven year's apprenticeship, and always keep on moving. How then do you expect to become proficient in one or two terms of lessons, and a transfer?

In your landscape work, you can paint little scenes which have perhaps, pleasing associations, or possess a meaning for you or for your friends, and which may be handed down through generations to come. They will not be copies of some flower study, such as perhaps thousands are copying at the same time, and which will be recognized by every caller who sees them and which you in your turn will recognize in many of your friends' homes. No! You will have something different from any one else, and if your work is well done you will be both praised and envied.

But perhaps your heart is set on something different from landscapes and marine views, perhaps on fruit. If so, go to the garden again. You have a grape arbor; if not, you know where there is one. It is just as simple to draw from nature as from a study and a great deal more interesting—only

you cannot trace nature with carbon paper. In addition to grapes there are blackberries, raspberries, currants—red, white and black, hop vines, and other twining plants, and all are beautiful if painted naturally and with natural surroundings, with sky and earth for a background and not with a conglomeration of colors that are misplaced according to nature. You cannot improve on nature's colors; even if your sky is leaden it will make your leaves and fruit all the more distinct, will soften the varied and vivid greens and lend a richness of color to the fruit. Of course grapes in sunlight—that is, between you and the sun, are perhaps more beautiful, more translucent, more brilliant with reflected lights. Take your choice. The grey background and the quieter colors are a little easier to paint, but I notice that the amateur often despises the simple and wrestles with the difficult.

What I have written in this article is merely by way of introduction. In succeeding numbers I shall give instructions in china painting, handling each subject in three lessons, "one for each fire," giving a graphic outline, describing the colors to be used, and the mixing of the mediums. The lesson will be free. Do not despise it on that account. Questions about decorating will in the following issue, be answered to subscribers only. Address "Ceramics," care THE GUIDE TO NATURE.

Stray Thoughts of a Nature Lover.

BY JOHN A. SHEDD, NEW YORK CITY.

If you cannot afford a tiger keep a cat.

The country makes men; the city spends them.

It is something to boast of to have gained the confidence of a cat.

If there are green fields in Heaven, I know God will not forget the street-car horses.

The clover is such a homely little flower, but pray tell me which flower has more honey?

Nature forced, rebels; you may double her blossoms if you will, but then she takes her perfume from them.

The nightingale has such homely clothes, listen! Ah! The macaw wears gorgeous robes, listen! Bah!

There is no denying that weeds are weeds; but when a weed does a weed's work it is not useless. God created the weed as well as the rose.

Butterflies of fashion! What a slander upon the butterflies, who in centuries have not changed the style of their dress.

The swallow skims the surface of the lake and thinks he knows the water; the fish below know they know.

Dare not despise even the earth of thy garden, to be sure it is not so fair as the sunshine and the dew, but is it not just as needful for the life and health of the plants?

God's sweet breath of spring has kissed the brown branches of the ugly apple tree down in the orchard and lo! they have burst forth in a chorus of pink and white glory!

A bunch of flowers, a dozen children of the street, unite the two and lo! you have transformed the stony street into a very Eden for a minute or two; it often takes but a little thought on our part to create a dozen happy little temporary millionaires.

Mr. Roosevelt and the English Birds.

In *The Outlook*, Mr. Theodore Roosevelt writes of English song birds and their songs with as much obvious zest and discrimination as if to see and hear them had been one of the main objects of his visit to England. One day, between the funeral of King Edward and the Guildhall speech, he found or made the time, amidst official, social and academic honors and opportunities that would have bewildered a head less sound and flattered a man less sincere, he stole away into the fields and woods with a delightful and learned companion, and there made first-hand acquaintance with the singing birds which till then had been his friends only in familiar books. And now, while still, as always, very fully occupied, and at the same time playing a public role that calls constantly for great tact and wisdom, he once more finds or makes the time to tell Ameri-

can readers of this naturalist's excursion.

Altogether apart from the charm and value of the *Outlook* article as a contribution to bird-lore, this characteristic episode of Mr. Roosevelt's days in England carries a stimulus and a challenge. Is any one of us more engrossed with large affairs, or weighed with graver responsibilities, than was Mr. Roosevelt when he dropped for half a day out of the insistent world and harkened eagerly to the notes of the nightingale, the cuckoo, and the English robin? We take both our business and ourselves too seriously. Our sense of proportion is benumbed, because we have too long laid one-sided emphasis on isolated projects and pursuits. We are possessed by our daily tasks; we can no longer shake ourselves free of them. We quickly lose the power of interesting ourselves in anything except the immediate objects of our endeavors, which are magnified under our unflickering attention till they react upon us hypnotically, enslaving us to them. We come to consider ourselves too busy to spare the time for any pleasure, any duty, that does not seem to belong in the little world to which we have deliberately restricted our thinking and our feeling.

Once again the many-sided Mr. Roosevelt has reminded us that the world has countless interests, and shown us how to turn, with equal profit and enjoyment, from the greater to the lesser elements of a fully rounded life. It is a lesson sorely needed. When we have mastered it the greater tasks that engage us—perhaps not so great as our habits and conceits would make them—will no longer hold absolute dominion over us; we shall begin to live more completely. It will be easier then to reach the busy man, become less busy in his own eyes, and to engage his interest and help, whether it be in some vast project in his own specialty or something far more remote, such as a plan to conserve forests which he has never seen, for a future which he cannot himself enjoy.—*American Forestry*.

CORRESPONDENCE AND INFORMATION

The Edelweiss in New England.

Budleigh Hall, Dudley, Mass.
To the Editor:

What do you think of my success with edelweiss? I planted the seeds last year and watched the little plants all summer, saving them from being weeded out by an enthusiastic hired



EDELWEISS GROWN BY MRS. CONANT.

man. I have about eight plants all full of these cottony looking flowers. Isn't it interesting to find these foreigners among my sweet Williams, larkspur and other old-fashioned flowers? They are a long way from home! What would their Swiss ancestors think to see them blooming in a New England hillside garden? But you see how they have repaid me for my devotion and care last summer. They are the right sort and I shall hope nothing will prevent their establishing a foothold in my garden. I wondered how our summer would affect them. Do you know? We are between seven hundred and eight hundred feet above sea level, which may be all right for them.

* * * * *

I bought my seeds of R. & J. Farquhar, Boston. In their catalogue it speaks of the edelweiss as an easily grown, hardy perennial. Wish you could see my little plants growing—



EDELWEISS FROM SCOTLAND.

Contributed by Miss Elizabeth H. Hale, Brooklyn, New York.

they certainly are interesting. I think by your calling attention to the flower you will find that many persons have it in their gardens.

Wouldn't it be interesting to have a geographical garden? I never heard of one, but the idea has just popped into my head. If only some of these people that tour would send us stay-at-homes seeds or plants, it would be great fun to travel through these foreign lands in one's garden.

Sincerely yours,
MRS. S. M. CONANT.

Extra-Leaved Clover.

Red Bank, New Jersey.

To the Editor:—

Hunting for four-leaved clover is a pleasant and healthful pastime, and, contrary to the general opinion, such leaves are developed in great quantities. With favorable conditions, which are wet or humid weather, they may be obtained in large numbers.

For the past ten years, during the spring, summer and autumn I have found extra-leaved clovers on the white, yellow, red and crimson plants. One or all of these varieties grow in every state in the country.

The white is most common. Three years ago, from a plant of this kind, which was growing by the roadside, I picked several four-leaved and five-leaved stems. As an experiment I transferred the plant to my door-yard, hoping that it would live and continue to produce extra leaves. The experiment was successful. The plant thrived, and by cultivation has spread, until it now occupies about four square feet of ground. During the past two years it has supplied me with from forty to fifty fours, and about one-third as many fives. This year, in addition to the fours and fives, one six-leaved and one seven-leaved stem was found growing in the patch.

A specimen of each of the extra-leaved clovers is shown in the accompanying photograph, which also shows an odd leaf formation from the white clover. Notice the small leaf on the four, and the two small leaves on the

five. All the extra leaves on these plants were small. In a patch about eight feet square, twenty fours and



EXTRA-LEAVED CLOVERS.

about as many fives were found, all growing in this peculiar and freaky way.

Respectfully yours,
WALTER E. BOYD.

A Pastoral Love Poem.

"He met her in the meadow,
As the sun was sinking low;
They walked along together
In the twilight's afterglow;
She waited, while gallantly
He lowered all the bars,
Her soft eyes bent upon him,
As radiant as the stars;
She neither smiled nor thanked him,
Because she knew not how,
For he was just a farmer's lad
And she a Jersey cow."

"Life is a series of pictures and they come our way but once." Let's try to save them with the camera.

La Rue Holmes Nature Lovers League.

A Prize Offer.

All Chapters sending at least one essay each month to the Secretary of the Central Association during the school year, will be entitled to a subscription, to THE GUIDE TO NATURE for one year.

These little papers are to bear the titles of the Audubon leaflets as they are studied each month, and should embody some of the most important facts concerning the birds represented as taught by the leaflets, as well as all possible points of interest connected with them, obtained by original observation.

The length, or literary quality of such papers, will be of no especial consideration, the object being to lead our members to become familiar with at least ten birds each year; to acquaint them with the economic value of each bird, as it has been rated by the U. S. Biological Survey, and to stimulate an interest in original observation.

* * * *

The following are the names of the officers of the Alpha Auxiliary Chapter recently organized at Summit, N. J.: President, J. Sherman Byland; First Vice-President, Edward Whiting; Second Vice-President, Norman Gardner; Secretary, Alfred C. Kinsey; Treasurer, James Dunn.

* * * *

The report from the warden in charge of the L. H. Nature League Bird Refuge at Stone Harbor, off the coast of Cape May Co., N. J., states that the nesting season this year was favorable for the gulls, and their numbers (so greatly depleted through the slaughter inaugurated because of the demand for the gull-plumage) are on the increase.

* * * *

Have you kept the census of the wild flowers of your locality, or of bird migrations, during the past season? If so, we would appreciate the favor of a copy.

Incentive to Tree Culture.

Being a nature lover you appreciate the beauty and economic value not only of the forest, but of the individual tree. Did you ever consider the advisability of freeing from taxes all land held under forest-cover for a given term of years?

If every tree is a unit in the vast service of purifying the air: holding the winds in check to save the farmers' crops, and protect our homes, a unit in maintaining the water-supply of the country, why cut one down needlessly for fire-wood or as a means of paying taxes?

If the water-supply, in many places, is only about sufficient for the needs of the population of today, what about tomorrow if we continue to reduce the supply by remorselessly felling timber?

Would not the law of Germany, which provides that for every tree felled another must be planted, be a good law to adopt for this country? As men with small forest-holdings are cutting off timber as a means of paying the taxes, would it not be well to cut off the tax and save just so many water-supply protectors, even if to do so would involve a change in the Constitution of the State inaugurating the reform?

No trees means eventually no water. Fewer trees means less water. Why not save all the trees we can while we have them, without involving the future in the dilemma of planting others and waiting for them to grow when the cry is raised for more water?

Why not educate every child and man to see that any man, be he rich or poor, who holds his timber unfelled for a term of years is a public benefactor, who should be encouraged by every possible means, to continue his benefaction?

Why not take off taxes from every acre of land held forested for a decade, all back taxes to be due if the timber be prematurely cut?

Why not save our children, and perhaps ourselves, from the consequences of the water-famine which threatens in many quarters throughout the country?

LITERARY AND BIOGRAPHICAL

History of Astronomy. By George Forbes. With illustrations. New York: G. P. Putnam's Sons.

This monograph explains how the principal scientific discoveries have been arrived at and the names of the workers to whom such discoveries are due.

A Text-Book of Field Zoology. Insects and Their Near Relatives and Birds. By Lottie E. Crary. With one hundred and seventeen illustrations. Philadelphia: P. Blakiston's Son & Company.

This is a book for beginning students of zoology—mostly devoted to insects, but with a few pages on birds.

Elementary Zoology. By Vernon L. Kellogg, M. S. New York: Henry Holt & Co.

This is a convenient and well arranged book for use in field or laboratory, though the references to field work consist chiefly of suggestions to teacher and student regarding the character of the work and the opportunities for it.

Progressive Poultry Culture. A Text-book of Study and Practice in the Keeping of Poultry for Profit and Pleasure. By Arthur A. Brigham, B. S., Ph. D. Illustrated. Cedar Rapids, Iowa: The Torch Press.

This volume will have fulfilled the purpose of its publication if it proves helpful to many practical poultrymen and poultrywomen, beginners and veterans alike, and provides instruction for numerous students of poultry culture in college, school and home.

Chats about Astronomy. By H. P. Hollis, B. A., F. R. A. S. Philadelphia: J. B. Lippincott Company.

This little book has not been written for astronomers, but there are many persons who ask questions of this type: "Is Venus bright once a year?" "Does the Moon always shine in an East window in the evening as the Sun does in the morning?" "Will it do me harm if the Moon shines on my bed when I am asleep?" "You ought to know because you are an astronomer." To answer some such questions as these, and to give a little information about a misunderstood occupation, these few chapters have been written.

How to Keep Bees for Profit. By D. Everett Lyon, Ph. D. New York: The Macmillan Company.

Here the reader is given an insight into the life history of the bee family, and has pointed out the various methods by which they may be made of increased interest and profit. The author, a minister, like many others of the profession, has become enthusiastic and an expert.

Poems. By William Whitman Bailey. Providence: Preston & Rounds Company.

As Agassiz combined intense amateur enthusiasm with the extensive scientific knowledge, so Professor Bailey has combined the poetic "fine fancy" with a life's work in technical botany. He is well known to our readers, and we are glad to have this member of the Council of The Agassiz Association thus invoke the poetic muse in bringing us nearer to nature.

Diseases of Cultivated Plants and Trees. By George Massee. New York: The Macmillan Company.

This is an excellent collection of literature gathered from many sources pertaining to plant diseases. Previous to the publication of this work there has been a great lack of compact general review of the actual state of affairs, and the practical man was at a loss as to how matters really stood. This book provides an excellent arrangement of the results of a large number of workers in various phases of plant diseases.

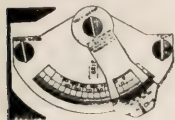
A White-Paper Garden. By Sara Andrew Shafer. With Four Plates in Color, and Other Illustrations from Photographs by Frances and Mary Allen. Chicago, Illinois: A. C. McClurg & Company.

This is a novel idea and well worked out—a garden of paper for those who have not an actual garden. As the author well expresses it in the following:

"The joy and the beauty of the whole earth ought to be for all of Earth's children, but, alas! for how many lips is a cup prepared into which bitter herbs are pressed! Country-born, village-bred, how many eyes are there heavy with longing for the world they once knew, and dim with tears for the old days, and the old ways, yet for whom there is nothing but the pitiless glare of the city streets. Gardens they have to remember, gardens to dream of, but even in gardening days, that is all."

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I am very glad indeed to write you that the lecture, "The Land of the Setting Sun," was most acceptable and I have heard several men comment most favorably upon it, and I hope that next season we may be able to make another engagement with you for your lecture entitled "A Little Sermon from Nature."

"The Excellent Slides Were Without Doubt the Best We Have Seen."

THE INTERNATIONAL YOUNG MEN'S CHRISTIAN ASSOCIATION TRAINING SCHOOL, SPRINGFIELD, MASSACHUSETTS. G. B. AFFLECK, A. B.

I wish to write you relative to your excellent lecture recently delivered in the opera house here. From the standpoint of substance we all much enjoyed the material presented, especially since you gave to it a strong touch of individuality, and I think gave many of your auditors the conception that while much in "The Land of the Setting Sun" is decidedly attractive yet there is at home and close at hand that which is equally beautiful and wonderful. I believe this conception would do very much to round out and complete the lives and experiences of those who at present live to a certain extent in a humdrum existence. We were all particularly enthusiastic over the excellent slides. They were without doubt the best we have seen.

"Listened with Delight to His Sympathetic Presentation of the Subject."

MISS LOW AND MISS HEYWOOD'S BOARDING AND DAY SCHOOL FOR GIRLS,
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Dr. Edward F. Bigelow gave his lecture on "The Land of the Setting Sun" before the pupils of our school. It was one of a course of several lectures and perhaps the one most enjoyed. Dr. Bigelow is always full of enthusiasm for his subject and is always followed

with interest by his audience. At this lecture there were several pupils from California present who listened with delight to his sympathetic presentation of his subject. The slides were extremely clear and beautiful and selected with great judgment.

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So many of our people and others have been asking me to ask the favor of your repeating the lecture on "The Land of the Setting Sun." They say it was grand and lots of people in the city would like to hear it who were not present two weeks ago. Now will you do us *all* the favor? I can let you have Sunday evening, January 24, a week from this Sunday. Do say yes and phone me so I can announce it from the pulpit.

"Was a Delight to All."

The lecture on "The Land of the Setting Sun," by Dr. Edward F. Bigelow, last Sunday evening, was a delight to all who had the pleasure of listening to it. The pictures were exquisite in color, especially those showing the flora of California. There was a great variety of many of the most wonderful and interesting things to be found in the great State. The lecturer was enthusiastic in spirit, graphic in description, eloquent in diction, and humorous by the way of side lights and piquant comments. He worked upon the imagination and sentiments of the audience and kept interest at a high pitch throughout. The wonderfully interesting and valuable things in nature were kept well in the foreground all the time, and the idea that there must be truth and appreciation in the soul in order to find it in nature were strongly emphasized. Any one desiring lectures of this kind will not be disappointed in Dr. Bigelow's "The Land of the Setting Sun."—The Daily Advocate, Stamford, Connecticut.

RECREATION ♣ Vol. 3 NOVEMBER 1910 No. 7 ♣ EDUCATION

The Guide to Nature

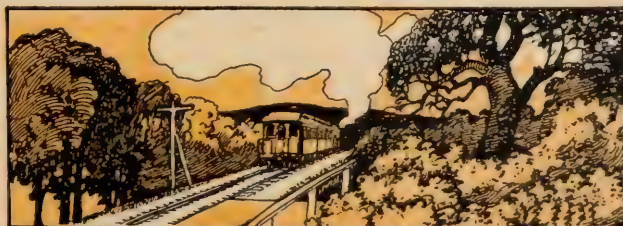
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(Also see previous page)

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The Revelry of Vines in Sound Beach.

In no place in which I have ever observed the clematis, the Virginia creeper (*Ampelopsis*) and the ivies, do they grow with that revelry, that profusion and ecstatic beauty which they exhibit in Sound Beach.

Last month we published a picture showing the beautiful effect produced by vines that had clambered even beyond the top of a pole for wires. This was on Ledge Road in front of Mr. James K. Hoyt's residence. Toward Mr. Edwin Binney's house a little farther east

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on the same road, is the stump of a tree
some twelve or fifteen feet in height covered
with the Virginia creeper in a pro-
fusion greater than I have elsewhere
seen in a long time. On Mr. Binney's
house the vines are so profusely devel-
oped, so luxuriant is the growth, that it
occurred to me that possibly there is



THE IVY ON "ROCKLYN."



A VINE-COVERED STUMP IN FRONT OF THE
HOME OF DR. J. E. SERRE.

some special reason for it, but upon writing to Mr. Binney he replied as follows:

"Replying to your favor of the 22d inst., I wish to thank you for the photograph submitted. This is certainly a splendid piece of work.

"So far as the Ivy of Rocklyn is concerned, I was not aware that there was anything unusual about it. In securing this growth we have not used any special treatment. The stuff was planted and, like Topsy, it grew."

This house is situated on the extreme point of Sound Beach and offers not only a magnificent view of the Sound, but the building itself with its quaint architecture, the solidity of its stone walls, and beauty of the vines that cover it, forms an imposing frontispiece to Sound Beach when that town is viewed from the water.

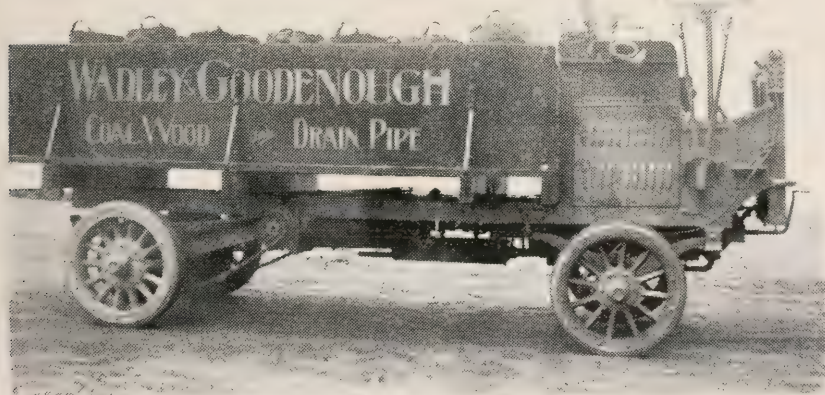
The Sound Beach Magazine.

THE GUIDE TO NATURE is certainly a most excellent magazine and I will not be without it.—*Lloyd V. France, Green Bay, Wisconsin.*

Your magazine is O. K. Long may THE GUIDE TO NATURE be published.—*Clarence Wood, Palmyra, New York.*

You have started a very interesting magazine.—*I. P. Morey, Baxter Springs, Kansas.*

To popularize science is a noble work and worthy of all praise.—*Dr. J. S. Latimer, Mount Vernon, New York.*



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STAMFORD, CONN.***"Upon properly appointed and becoming dwellings, depends more than anything else the improvement of mankind."*—*Disraeli.***An Old Wheel of the Wire Mills.**

Nature lovers who are fond of wandering in the northern part of Stamford never fail to visit the old wheel of the wire mills. It has probably been the target of more cameras than any other object in the vicinity, because there is around it not only the beauty of the scenery but the romance of the long, long ago of Stamford. Yet it has been difficult to obtain any definite information regarding the wheel. The writer

has requested several persons who are well informed in the history of Stamford to send us any information that they may have, and we here repeat this invitation.

As we look southward from the bridge near the wheel, we have a view of a magnificent ravine, and of a stream of water in which the reflections of the trees and shrubbery are so perfect, that a photograph of the scene may be examined with either side upward and with results



THE OLD WHEEL AT THE "WIRE MILLS."



THE REFLECTION FROM THE "WIRE MILLS"
BRIDGE.

that are almost equally satisfactory. To take such a reversible photograph, the air must of course be very quiet, so that the water may be a perfect and unruffled mirror.



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I wish to encourage the dissemination of such knowledge as the magazine imparts. I hope it may have a long and useful life in exciting more interest in outdoor life, and please speak forcibly for bird protection by popular sentiment. Laws can do but a little in this line in comparison with what may be accomplished by education.—Isaac G. Roberts, West Chester, Pennsylvania.

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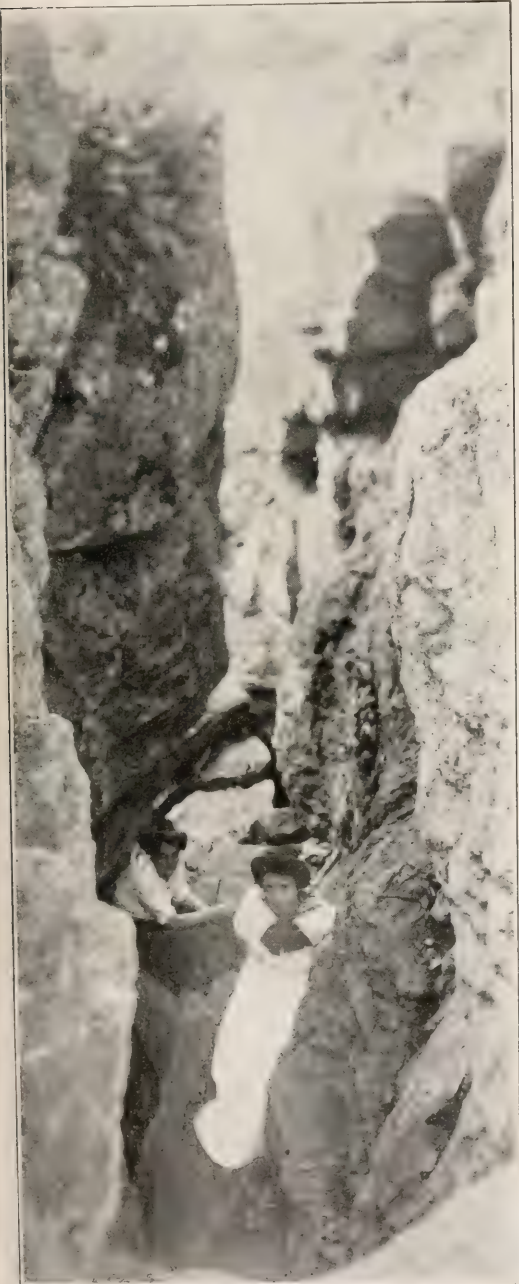
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The Split Rock.

In the northern part of Stamford is a remarkable geological formation consisting of a hill composed almost entirely of rock, some of it ledge-like, but the greater part broken into pieces, as if nature had become impatient toward the end of the work.

The cap that crowns this hill is a split rock as big as an ordinary country



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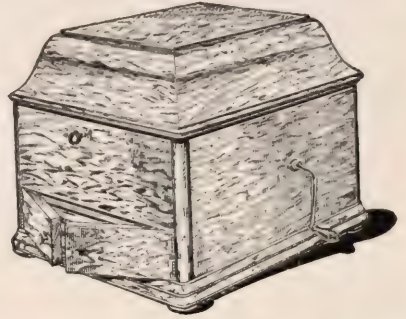
Virgil N. Jones
STAMFORD CONN.

'Phone 61

house, and the crevice is wide enough to accommodate two or three persons standing side by side.

The mass may be regarded as one of nature's most imposing works in this vicinity. It impresses the beholder as an evidence of her enormous power. Fortunately it is situated at a considerable distance from the road, so that those people who have become so accustomed to automobiles that they have nearly forgotten how to walk must revive their memories and practice over about three-quarters of a mile of field and forest, if they see it at all, as they probably do not. Those who still retain the use of their legs may here have a chance to do some field walking and hill climbing

equal to any to be found in the foothills of the Rockies. But the view from the summit is well worth a long automobile trip and some strenuous walking.



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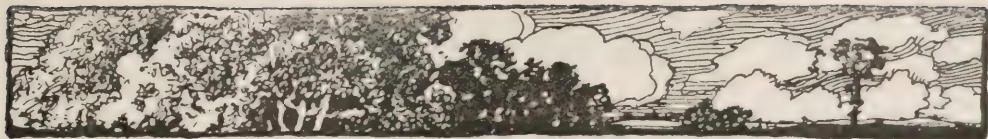
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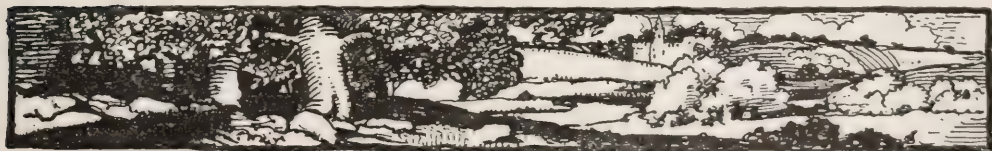
FOR A GREATER LOVE OF GOD'S WORLD

O God, who has made all things beautiful; we pray Thee to open our hearts and give us pure eyes that we may read all the wondrous book of nature and see Thee everywhere. May the changing skies, the shady woods, the birds and flowers, all speak to us of Thy great love; and may we daily rejoice in the gifts Thou has so freely showered upon us. O help us to show forth Thy praise and thanksgiving by gladly offering to Thee the service of our lives; for Jesus Christ's sake. Amen.



FOR KINDNESS TO ANIMALS

O my God, grant that as Thou has given us dominion over the animals, their very helplessness and dependence on us may fill us with kindness and gentleness towards them. May we never be guilty of cruelty or of ill-treating or teasing any living thing that Thou hast made. Teach us our responsibility for the right use of whatever power Thou does put into our hands, and grant that by showing love and compassion to all Thy creatures, we may be partakers of Thy infinite pity and tenderness; for Jesus Christ's sake. Amen.





EASTERN RED SQUIRREL.
Photographed from life by Dr. R. W. Shufeldt, Washington, D. C.

It has been ascertained . . . that very few men who in boyhood owned or cared for a pet animal, . . . are to be found among criminals. Not only does the pet bird or beast entertain, but under proper direction, it trains one in gentle ways, in a sense of justice, and it goes far to insure an honest life.—*Olive Thorne Miller* (slightly adapted).



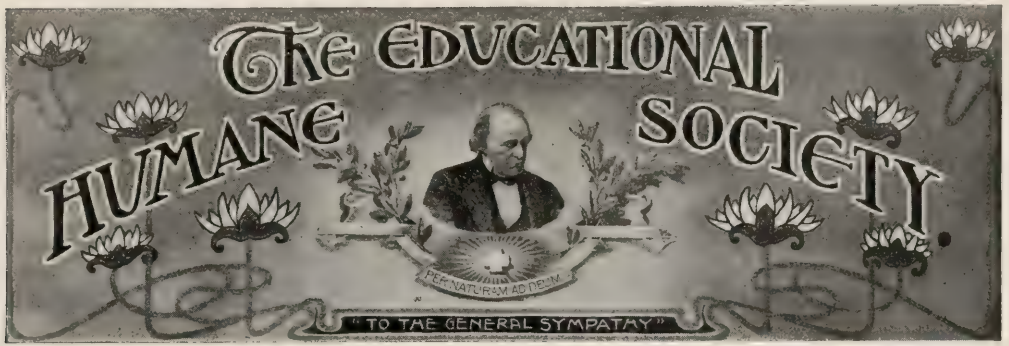
THE GUIDE TO NATURE

EDUCATION AND RECREATION

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A Chapter of the Agassiz Association. (Incorporated 1892 and 1910.) The Law of Love, Not the Love of Law.

The Why and the How of Pets

By EDWARD F. BIGELOW, Arcadia: Sound Beach, Connecticut



WHY keep pets?

Because the care of them is altruistic—or should be or, perhaps it is better said, **MUST** be. The moment the care of any form of animal life (and one might almost add of plant life also) becomes egoistic, that is for the money or the food, then that animal is no longer a pet; it is a business equipment. The tendency of man or woman is toward accumulative selfishness. Such a tendency is not desirable but becomes easier, perhaps more dangerous, the greater the lack of training and exercise of altruism in youth.

So I repeat—the more you can keep the animal in mind, and the more you

can put your gain far away, the more that animal is a pet.

The question, “What use is it?” should never be asked in a pet house. But if you must ask it, then the true lover of pets will tell you, “It is useful to be itself; to take you out of yourself.”

“But,” you persist, “can you eat them?”

Yes. Mentally and spiritually; but, physically, never.

Then you, puzzled but not baffled, insist, “I suppose you study them for their heredity, etc.”

No. For your cupidity and a lot of other things. By them I know whether the world centers in you and the whole solar system revolves on you like a pivot.

Pardon this little soliloquy. I am aware this is "a practical age." I do not dispute that. Alas! most of us who live and work for an *ideal* know it too well. But the point I contend for is that pets cannot be money-making. The very terms are antithetical. Keep pets as a counter irritant to your money-making, but not as a supplement. The results, the why of pets, are, therefore, not for business, but the care should be in a business-like manner. There is a right way and a wrong way.

theory, or in that of any one else, regarding it.

When you thus keep a pet, you will become an evolutionist; that is, you will realize that the pet is only a "brother" in animal life. Like you, it seeks happiness which is only another name for "adaptation to environment." The temperature must be adapted to its needs; its food must be palatable and sufficient—avoiding overfeeding; and the cage or room must be adapted to activity and rest.

Keep the cages clean, and feed regu-



A LONG-HAIRED CAVY WITH FOREPART OF ITS BODY ON AN APPLE.

"How" should one keep them? In exactly the same way as the why as already explained. "The more you can keep the animal in mind" explains the whole of the how. The care, like the reasons for keeping should be altruistic. First of all, keep only a pet that you love. Then study the needs of that pet, mixing in a liberal supply of diligent care and common sense. Confer with others, read, inquire; then ask the pet, and discard what all others have told you. If the pet does not want the method, then do not force it. Your hobby is in the pet, not in your

larly but not too frequently. Most pets like a variety of diet.

Have a place for the pet and everything that pertains to it, but do not make its care fussy, over particular, nor in burdensome routine. Be ready to experiment and to change your mind if experience necessitates it. When you have nothing more to learn or love of the pet, do not continue to keep it. Give it away to some one who has all the enthusiasm of inexperience. When the work becomes perfunctory, and you feel that you know it all, quit. In keeping pets, as with life, when

you cease to LIVE and to be alive to interests and improvements, you are either ossified or dead. Some people continue to walk about that should have died years ago, and some people keep pets when they should have stopped before they began—or SOON after.

* * * * *

Now let us take it for granted that you are adapted to keeping pets and seriously inquire as to what kind you shall keep and how you shall keep them.

Rats, snakes, toads and many other forms of life commonly regarded as disagreeable have at least one decided advantage; they are the best test of your altruistic spirit, and perhaps in so far are the best pets. But the trouble comes in that if you dislike them, you will not make it altruistic gymnastics, but neglect. Therefore, though it be illogical from the argument of this article, keep the kind you like best. It is better to have the pets well cared for than for you to be greatly improved. Who knows but that the pet may be more important than you.

Cavies—they are not Guinea pigs because they did not come from Guinea, nor are they pigs—have many advantages. Other than mice or rats, there are no four-footed pets better adapted to small space. They may even be kept in a small box in the



A WHITE RABBIT.

house. If in a place where there are no dogs or cats, there is not even the necessity of a cover for they will not jump out. In one end for a dark chamber, turn a smaller box with a hole in the side bottom upwards, which will be all that is needed for the "home." Keep the bottom covered with litter and clean as frequently as may be necessary.



"JET," A BLACK ENGLISH RABBIT AND HIS PECULIARLY MIXED OFFSPRING.



PET MICE IN A FROLIC.

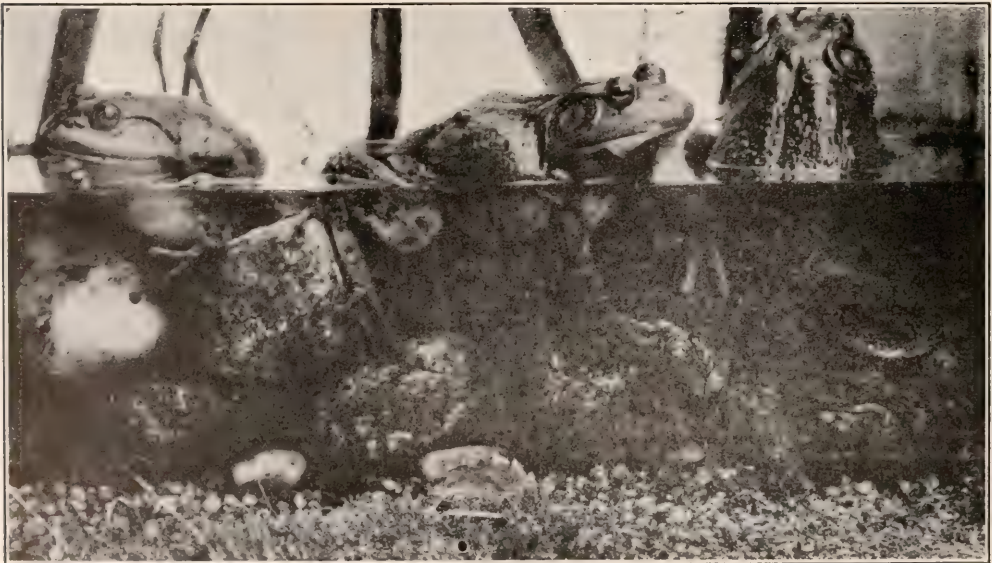
Do not worry about their overrunning the house by extensive breeding. "Pigs is Pigs" is a funny story, but lacks even the suggestion of basis on fact. It might be dangerous for Ellis Parker Butler to call on certain breed-

ers of cavies—not alone from his misnaming, but from misrepresentations; that is, after all allowances have been made for the jocose exaggerations.

Rabbits are better breeders. But do not try to keep Belgian hares and turn your butcher out of business. Have a little pity for the butcher, and do not rely on the ten-dollar pair of Belgians which had four litters a year, each of five ten-dollar pairs, and then—and then, you built a mansion and worried the remainder of your life as to where to safely invest all the money!

Japanese rats are "ratty" only in name. They have many interesting traits and no vermin-like odor. In one respect are they a decided contrast to the cavies. A rat's tail is a most convenient handle.

Woodchucks in captivity become astonishingly gentle, if taken when young and well cared for. Astonishing stories are told of their friendliness. But be careful! Their teeth may be more a fact than some of the stories. If one keeps a woodchuck, he should never lose sight of the fact that it is a woodchuck, the most vicious biter of all the native four-footed animals. Let the woodchuck hibernate in a box of hay, kept where



FROGS ARE EXCELLENT PETS—ALWAYS INTERESTING—EASILY CARED FOR.

the temperature in winter is near but not below freezing. Take it out occasionally and hold it in your hand. To hold in your hand the sleeping, slowly breathing, crescent ball of fur is to come into intimate touch with the Unknown. It is an experience never to be forgotten.

Foxes, squirrels and even skunks have won favor as pets. Any form of local four-footed animals will respond to gentle and judicious treatment.

Frogs and turtles have one excellent quality in requiring but little care. Feed them occasionally during the warm months. In winter they seldom eat. Keep in a cool, moist place.

Chameleons, newts, fish and hosts of smaller forms of life may be cared for in terraria, vivaria or aquaria.

Many insects are excellent pets. Bees and ants are preeminently good, but grasshoppers and crickets are a close second. Feed these bits of moistened bread and some fruit—conveniently apple or banana.

Bees may be kept in so simple a hive as a boot-box, and ants in a bottle or fruit can with netting over the top. But the bees are better enjoyed in a variety of hives from the dealers, and ants in one of the many forms of cages advised by books on formic life.

So select what you can best care for and then care for it according to needs.

Once there was a man who did not care for pets. He died and no one cared for him. Love always begets love, and the absence of it is equally in relation of cause and effect.

Pets are a tangible expression of love.

Age of Bullfrogs.

Our two bullfrogs, *Rana catesbiana*, after having been in captivity for eight years died in August. Frequent mention of these frogs has been made in previous numbers of the Museum News, but as little seems to be known concerning the age of bullfrogs, it may be worth while to record the following brief data:

The frogs came to us from Elmhurst, L. I. in the summer of 1902, when fully grown, the male measuring 12.6 inches

and the female 14.4 inches, total length. Three days before death the male weighed 15 oz. and the female 25 oz. Allowing two years for the tadpole stage, and three years for the growth as frogs, our two captives must have been at least thirteen years old, counting from the egg state. Under natural and favorable conditions it seems probable that bullfrogs live from fifteen to twenty years.—*The Museum News, Brooklyn, N. Y.*



FEEDING A YOUNG SPARROW HAWK.

A pet at Arcadia that has attracted much attention.

"Bird-Lore" for October publishes a list of 244 birds seen by one person during the course of one year in one state. This is over two-thirds the known bird population of Massachusetts, the state in question, and is doubtless a greater number of birds than has ever been observed before under similar conditions. The same issue devotes special attention to methods of attracting birds in winter and various devices for holding food are described. There are two full-page plates in color and numerous photographs of birds from nature.

Japanese Attitude Toward Animals.

BY MASUJIRO HONDA, OF THE SOCIETY
FOR THE HUMANE PROTECTION
OF ANIMALS, JAPAN.

Japanese mythology indicates the fact that our early ancestors became settled agriculturists without passing



MASUJIRO HONDA.

through the pastoral stage of evolution. The physical conditions of the island country preclude pastoral industry almost entirely. We have not therefore sufficiently learned how to take care of animals, and what domestic animals we have are poor in size, quality and variety.

Buddhism, on the other hand, instilled in our minds the sinfulness of taking life in whatsoever form it may be. Confucianism has also taught us to extend our benevolence even to plant creation. One of our classical poets expressed in his immortal verse, the idea that he would offer flowers to

Buddha as they stand and thrive in the field, because the hands that cut and mutilate the beautiful things must surely defile them. The Japanese art of floral arrangement was in itself inspired by an untold compassion on the blossoms that people carelessly picked for momentary enjoyment and threw on the ground without thought. The desire to keep alive those discarded flowers as long as possible was the origin of floral compositions of graceful lines and harmonious colors.

Dogs and cats are allowed to bask in the sun in the middle of the street or road, without molestation on the part of drivers and foot-passengers. The late George T. Angell of Boston wrote to us and praised us for this. Farmers as a rule keep only one ox or horse for plowing and as a beast of burden, and the animal is a member of the family. He lives usually under the same roof with the family, at one end of the house. If therefore the animal coughs, or sneezes, or shows any other signs of ill-health, he will be cared for at once. As our domestic industry passes into factory labor to some extent, steam and electricity are gradually lightening the burden of carrier animals.

Cruelty to dumb animals does exist, we must admit, but it is largely from ignorance rather than malice. And our extreme abhorrence to take lives produced a negative kind of cruelty in allowing sick or wounded animals to linger on in their suffering. We humane workers of Japan, therefore, are endeavoring to educate the public in the sentiment of the positive love and better care of the dumb creation. The name of our organization has lately been changed in the Society for the Humane Protection of Animals, as the word cruelty was considered undesirable and unpleasant. As yet we do not feel the need of penalizing maltreatment of animals. What cruelty there is is dealt with by police regulations, the means employed being admonition, fine, detention, or immediate redress of the wrong done.

Our method of work being essentially educative, books, booklets and lectures are much resorted to. Such

works as "Beautiful Joe," "Black Beauty," "The Strike at Shane's," "A Dog of Flanders" have been translated into Japanese. One popular writer of fairy tales writes and lectures along the line of kindness to animals, and his influence among young children is very great because he has endeared himself to those little ones with his other stories. A young and earnest friend of animals has organized a children's Band of Mercy in Tokyo. He is lecturing to the children of his neighborhood from his sick bed. There are some daily papers and magazines that pay special attention to our subject and write often to promote kindness to animals. In the police force, in the army, among teachers and professors and writers—almost every circle in society—there are some preachers of our gospel to extend the kingdom of love and mercy.

The President of the Parent Society at Tokyo is a Shinto Priest, Baron Senke, ex-Minister of Justice, and its two Vice Presidents are a Buddhist Preacher and a Christian ex-M. P. In this way, animals are teaching men of diverse religious opinions to work harmoniously together for one common cause of humanity. A well-known jurist is our legal adviser and among the most distinguished promoters we find such names as Count Okuma, Baron Kanda, Baron General Fukushima, ex-Minister of Education Sawayanagi and so on. The President of the Yokohama branch of our Society is Governor Baron Sufu, and that of the Kobe branch Governor Hattori. Enrolling the services of these distinguished persons as officers of our Society helps to dissipate the foolish notion that it is a maudlin sentimentalism to make much fuss about lower animals. A third branch has sprung up at Shimoda through the earnest efforts of a Buddhist priest. This place is well known in Japanese history in connection with Commodore Perry's expedition to open our country to Western intercourse and commerce. It goes without saying that we owe much for the founding of these humane societies to the direct and indirect assistance and encouragement of American, Eng-

lish and German friends of animals, either in Japan or at home.

Memorial services were held for the horses killed and wounded in our wars with China and Russia, and a Buddhist priest is traveling all over Japan to raise funds for erecting a monument to the memory of the war-horses lost in our recent national struggle. His idea is to set up in a suitable place a statute of a horse with the Buddha of Mercy, Kwannon, on its back. The author of "Human Bullets" (its English translation published in Boston and London), a most sanguinary story of real experiences of a young army officer in that horrible siege of Port Arthur, has told to his readers a soldier's tender feelings toward the most faithful of all animals, perhaps except dogs.

Fortunately we have abundant material, both in history and in literature, from which we can tell stories and stories to children in nurseries, kindergartens, and schools to illustrate our inborn kindness and sympathy toward the dumb creation. Just to name a few instances, our 16th Emperor and his queen consort banished a man to a distant island for slaughtering a deer to offer the venison to their majesties. This animal had lived not far from their palace in Osaka and been accustomed to entertain them with its nightly calling. This compassionate act took place before Buddhism was brought to our shores, and before Confucianism had hardly time to humanize our ancestors. About fourteen hundred years ago, our 29th Emperor distinguished a man by appointment to an important post in his government, because he had been brave enough, and good enough to save the life of a wolf that had been fighting with another. This humanitarian Emperor's daughter became our 33rd sovereign. This gracious Empress thought that hunting, which was one of the court functions of the Emperors, was not becoming her sex, and instituted gathering medicinal herbs in the fields with her ladies-in-waiting and other court dignitaries. And the herbs thus collected were given to the government dispensary for the good of the sick. From

this we still call flower-viewing excursions *cherry-hunting*, *maple-hunting* and so on. There are, also, many instances in our history of women who generally persuaded their husbands or fathers to stop shooting for mere amusement. In this way, love of nature and abhorrence to cruelty have become part and parcel of our national character, and I believe and sincerely hope that even the modern life of strenuosity will not lead us astray very much.

The Pet Woodchuck in its Winter's "Sleep."

In the spring of 1909, a little girl called at our pet house with a small box in which was a young woodchuck. Several admiring boys and girls accompanied her, all repeatedly exclaiming in almost the same words and at the same time, "Mister, mister, she's caught a woodchuck right in her hands."

The heroine of the occasion modestly and meekly remarked, "I've brought you a baby woodchuck."

Upon inquiry it was ascertained that she had seen a woodchuck, about one-fourth the full size, running in the field near her home. She gave chase, overtook it and grabbed it with one hand

on the nape of the neck and the other on the back. She thus held it firmly and safely, despite its efforts to bite and to escape. A woodchuck, even a small one, can bite fiercely, but she held on bravely till the little animal was placed in the box.

The woodchuck was cared for in an ordinary rabbit hutch. Only once during the entire season was any part of it seen except the tip of its nose sticking out of the curiously wadded mass of hay in the dark section of the hutch. The food and water were once a day placed in an accessible spot and regularly disappeared every night. Once in the evening we had a glimpse of fur and heard a scurrying and scratching of feet as he ran from the runway to his dark bedroom. His nose and just a little of his face, sometimes even up to his bright eyes, were frequently pointed out to admiring visitors.

The last time that the food was eaten was on Thanksgiving Day, Thursday, November the twenty-fifth, much later than the woodchuck in the fields is supposed to be active.

A few days later the entire mass of



THE PET WOODCHUCK AT ARCADIA.



THE WOODCHUCK IN ITS WINTER'S SLEEP IN A BOX OF HAY IN OUR OFFICE.

hay and woodchuck was removed from the dark chamber. Most of the hay was cut into pieces only a few inches long and curiously matted and entwined around a cavity, reminding one of the weaving of sticks and grasses in the nest of a field mouse. Closely fitted into this cavity, and curled up for his winter's "sleep" or hibernation, was the woodchuck. The little animal was warm and the breathing was regular. Though handled freely, yet tenderly, the only sign of awakening was a slight unrolling as if affected by the warmth of the hands.

A long box was provided. One end was covered with wire netting, the other with boards. In this "little bedroom" end the ball of fur was tenderly packed in hay. When little woodchuck awakens in the spring there is

an opening ready for his exit into the wire covered section where he will probably give notice that he is awake and prepared for the season's activities. We greatly desire to know on just what day he will be ready for food and water, and to be placed in a cage with room for exercise. The "sleeping" box is now in a corner of the cellar where it will be cool and yet not freezing cold.

Later.—This article was written last winter. The woodchuck awakened several times during the winter and remained awake for a day or two. In the spring the sleeping periods became shorter. At the time this number of *THE GUIDE TO NATURE* goes to press he is in the pet house as active as ever.

The Two-headed Turtle.

BY PAUL L. LOCKWOOD, NEWARK,
NEW JERSEY.

Two heads may have been better than one to the thief as he crawled out of the cabbage patch, but to this little turtle, whose photograph is herewith



THE TWO-HEADED TURTLE.

reproduced, they proved a decided detriment. Besides being responsible for his capture, they have brought him considerable notoriety, and he has been subjected to a rigid inspection by several naturalists.

It is of the ordinary mud turtle variety, and not much larger than a silver dollar. This queer freak of nature was found by Alexander Mailey, a letter-carrier attached to the Belleville postal station of Newark, N. J. The postman noticed the creature in the mud along the side of the road and was about to pass it by when he saw the two heads come out from under the shell. He put it in his pocket, and when he had finished his route he carried it to a dealer in birds and animals who pronounced it a curiosity the like of which he had not seen in thirty-two years' experience.

Each head of the little turtle is perfect in every detail, and each is on a distinct neck as can be seen in the photograph. Its freakish anatomy suggested innumerable possibilities, and

a close observation of the specimen revealed the fact that each head could act independently of the other. Another thing, the right head had perfect control of the feet on the right side while the left head was in command of the left side. Just which head had control of the tail is a mystery that was never solved. It was noticed that when one head wanted to travel east and the other west there would be a terrific struggle which generally ended where it started.

Sometimes the left head would come out alone, and while the feet on the right side remained inactive the left feet would struggle hard to move the entire body away, and accomplish nothing but a few circles in the water. The same was true of the right side. If the left head gazed from its left eye at a tempting fly—from a turtle standpoint—and the right head should gaze from its right eye at a tender moth, and both decided to seize its prospective prey at the same time, what would happen? Suppose the right head wanted to go on a little "jag," while the left head decided that the church was the proper place for a good little turtle to go to, what then would happen? Would it be fair for the left head that wanted to be good?

Don't Kill Snakes and Toads.

The French town authorities post village bulletin boards, for public instruction. One of these reads "Hedgehog: live on mice, snails and wireworms—do not kill a hedgehog. Toad: helps agriculture, killing twenty to thirty insects every hour—do not kill a toad. Cockchafer: deadly enemy to the farmer; lays one hundred eggs at a time—kill the cockchafer." It would be a good idea for our own government to post bulletins of this sort, instead of printing so many for circulation.

In the south most of the snakes are of great value, and that is relatively true everywhere. The blue racer, a handsome fellow, is estimated to be worth ten dollars a year to destroy mice and gophers. The bull snake and garter snake destroy insects and rodents,

without themselves hurting the garden. In my Clinton ground we have so long protected the garter snake that he suns himself on the compost piles without fearing us at all. Why not? Why carry a spite because a serpent is said to have tempted Eve? Was it not a fair match? Poisonous snakes are nearly as rare as those that talk.—*E. D. Powell, in "Outing."*

The Oxen Excelled Them.

Jones had a yoke of oxen, shapely, "well built," attractive and the admiration of all the farmers in the vicinity, except of Jones who knew that their looks were deceptive, because in disposition they were the worst possible. "Lamb," the nigh ox, was energetic and ambitious, while "Lion," the off ox, was phlegmatic and lazy.

So Jones made up his mind to sell them, hoping that their shape and appearance would bring a high price. But Jones omitted to mention to Brown, the purchaser, their little idiosyncrasies of disagreement. After the sale, Jones avoided Brown, but one day by chance they met. Jones shrugged his shoulders, set his teeth and prepared for the anticipated storm of words. But to his astonishment Brown met him with a cheery tone and a smiling look.

Said Brown, "Them ere oxen are the best ones I ever had."

"Eh, eh, yes-s," stammered Jones, "they are a fine looking pair."

"Not only in looks but in disposition they are A1—best in agreement I ever had."

"Wh-what! Well, well, I didn't really think that was their strongest point."

"Yes, it is," cheerily and cuttingly replied Brown. "You sold me the best pair in agreement of disposition that I ever had. One is perfectly willing to do all the work, and the other is perfectly willing that he should."

* * * * *

Mr. C. H. Ellard of Great Neck, New York, has evidently been even too willing to work hard in behalf of The American Fur Fanciers' Association. He has not tried to monopolize the work but he has been willing to do

work that should have been done by others. But these "others" have been excelled by the "off ox"—they have not, as it appears, been willing that he should. They have made remarks that are mean and untruthful; they have said that the A. F. F. A. is a one-man organization, and that its members are a lot of dupes. I have attended several annual meetings, and have followed Mr. Ellard's work. It has been faithful and in the right spirit; It has been ideal.

Four-footed pets are important objects in nature study. There are no more attractive four-footed pets than cavies and rabbits, and no man ever lived who has worked harder or more effectively than Mr. Ellard. He is well educated, he is a professor in Columbia University, he is thoroughly scientific. He also has the skill to popularize the study of four-footed pets, and to incite a love for them.

The AA believes in pets. This magazine stands for humane education for both the young and the adult largely by personal interest in pets. The writer, as a member of the A. F. F. A., makes a motion that Mr. Ellard's critics and defamers be captured, put in strong cages, labelled and exhibited at the next show in Madison Square Garden. Each one will take a premium, and one will have a ribbon.—"Best in the Show."

"Bird-Lore" and Cats.

Bird-Lore's stand on the "cat question" is criticised by a number of its readers, who maintain that "cat-lovers, as well as bird-lovers, have rights." Of course they have, and it is our earnest hope that their rights may be so clearly defined by proper laws that no court in the land can refuse to grant them. The dog, through its owner has a legal status, and we fail to see why the cat, through its owner, should not be equally recognized by our legislators. But ownerless dogs are vagrants, and are so treated by societies for the prevention of cruelty to animals; and we ask only that ownerless cats also be taken in charge by those having authority.—*Bird-Lore.*

Keep Your Cats and Dogs at Home.

Do you love cats and dogs?

"Yes."

So do I. I like to care for them, observe them, read about them, talk about them and write about them. And all these things I believe I have an absolute right to do, and in this you and I undoubtedly agree. But I do not believe I have any right to let my cats loose on your birds, your garden, your plants nor your midnight slumbers; nor do I believe that I have any right to let my dogs loose on you, on your sheep, your hens, your cats, your children, your children's children, nor any other thing that you may have. Nor do I believe that you have any more rights with your cats and dogs than I have with mine.

"But our dog won't hurt you he's as gentle, why just as gentle and kind as, as"—as gentle and kind as a panther is to one who feeds and cares for it, and sometimes in about the same degree!

FEAR, as much as danger, is an evil, a fact that the prayer book recognizes when it says, "Defend us from all dangers and mischiefs, and from *the fear* of them."

The inherent principle of what Professor L. H. Bailey ("Manual of Gardening") says in the following applies not only to cats but to dogs, and in all the depredations of both:

"The birds will need protection from cats. There is no more reason why cats should roam at will and uncontrolled than that dogs or horses or poultry should be allowed unlimited license. A cat away from home is a trespasser and should be so treated. A person has no more right to inflict a cat on a neighborhood than to inflict a goat or rabbits or any other nuisance. All persons who keep cats should feel the same responsibility for them that they feel for other property; and they should be willing to forfeit their property right when they forfeit their control. The cats not only destroy birds, but they break the peace. The caterwauling at night will not be permitted in well governed communities any more than the shooting of

fire-arms or vicious talking will be allowed; all night-roaming cats should be gathered in, just as stray dogs and tramps are provided for.

"I do not dislike cats, but I desire to see them kept at home and within control. If persons say they cannot keep them on their own premises, then these persons should not be allowed to have them. A bell on the cat will prevent it from capturing old birds, and this may answer a good purpose late in the season; but it will not stop the robbing of nests or the taking of young birds, and here is where the greatest havoc is wrought.

"It is often asserted that cats must roam in order that rats and mice may be reduced; but probably few house mice and few rats are got by wandering cats; and, again, many cats are not mousers. There are other ways of controlling rats and mice; or if cats are employed for this purpose, see that they are restricted to the places where the house rats and mice are to be found."

Tax the Cat.

The excellent suggestion of Dr. Emily G. Hunt of Pasadena, to tax the cat, should be followed up. The plan would furnish a goodly sum of money to be divided among politicians of hundreds of towns and villages. Bird-lovers everywhere would be pleased, and, last of all, an incalculable amount of good would follow for our agricultural interests, which depend so largely upon the good deeds of birds. If a nuisance cannot be eaten, tax it. These two ways are very effective. Please do not consider that I am not a friend of the cat. We always have some darlings about the house. Last year there were two Angoras, and a large gray Maltese, all famous ratters. The Maltese brought sixteen dead rats to the house in the country in the one month in which a record was kept.

When the supply of rats and mice ran low, the enterprising cats became hunters in the woods about the house. Having been petted for bringing in the earlier game, they continued to bring in their quarry of all sorts. This consisted chiefly of rabbits, red and gray squir-

rels, chipmunks, and field-mice, all of which were abundant and destructive.

I have seen all three cats leave the house at sundown, and return with as many rabbits in a few minutes. They killed comparatively few birds, and were intelligent enough to leave little chickens alone. Nevertheless, the birds that they did kill were mostly our favorites about the house, and, if the supply of rodents had diminished much, very many birds would no doubt have been killed daily. If it is not wise to put a tax of one dollar per year upon all male cats in America, put a tax of three dollars per year at least upon all female cats. That would soon limit production.—*Robert T. Morris, 616 Madison Avenue, N. Y., in "Bird-Lore."*

Putting With Poultry.

The man who sprouts oats in little boxes beside the stove to provide his hens with "green feed" is a putterer, and while he may get quite a lot of satisfaction watching the hens eat it, he will not make wages. That sort of business does not make poultry raising a profitable business. Neither does hatching a little bunch of chickens in winter and puttering with them for ten or fifteen weeks to get twenty-five to thirty cents apiece for them. Instead of playing a little funny game like that, the business poultryman is gathering eggs by the bucketful and putting the fat price in his jeans.—*Fred Grundy, in Commercial Poultry.*

Grundy is the type of the "practical" man for whom we offered a few timely (?) suggestions in the October number.

Grundy's item has been copied by various publications, including "The Connecticut Farmer," from which we take it.

Grundy does not believe in puttering, nor in "satisfaction in watching," nor in "funny game," nor in anything else evidently that is not "a fat price in his jeans." To him the almighty non-puttering dollar is everything and he has no use for chickens if they do not make it.

Grundy's item is unsatisfactory in that it is unfinished. He leaves us in suspense as to what to do with that "fat price" in the "jeans." Perhaps he would take it and "putter" with automobiles, cigars, fast horses, fine clothes, houses, theatres. To "putter" in those lines would doubtless in his estimation be "practical"—but as to chickens—they are all to him the \$\$\$\$ breed. That they should be a resource in themselves, that one can take pleasure in such a "funny game," seems to be beyond his comprehension. Nature for its own sake is, in his opinion, not to be tolerated. A chicken is worthless unless it puts gold in Mr. Grundy's jeans. Put on your "thinking cap," Mr. Grundy, revise your opinion, and then when you repent, let us hear from you again.

He Couldn't Accept this Hypothesis.

"Now, children," said the kindergarten teacher in a determined effort to introduce nature study to her class, "I want you to look at this picture of a turtle. See his shell like a little house for him to creep into so that nothing can hurt him. See how good God has been to him. He hasn't any bones like we have; only his shell to hide in when he's afraid. Can all of you see the picture of the turtle?"

"Ya-as 'um."

"Do you all see the nice hard shell for the poor little boneless thing? Do all of you understand? Anyone who doesn't understand raise the right hand. Well, Johnny?"

"I don't understand."

"What don't you understand?" Johnny was an earnest child with spectacles and the kindergarten teacher's heart began to sink.

"I don't understand anything you've said," said Johnny.

"Why not, Johnny?"

"Because," said Johnny, "because the turtle certainly has got bones."

In the presence of conviction born of knowledge the kindergarten teacher still rallied her wits to the maintenance of discipline. "You may sit down, Johnny," she said with a forced smile. "You may sit down. There are different sorts of turtles."—*N. Y. Sun.*



Evening Sky Map for November.

BY PROF. ALFRED MITCHELL, OF COLUMBIA UNIVERSITY.

During November, there are two eclipses, one of the sun, and one of the moon; the first cannot be seen anywhere in the United States, while the second will be fairly well visible. On the second day of the month an uninteresting partial eclipse of the sun occurs in the North Pacific Ocean. A half month later, on the sixteenth, a total eclipse of the moon takes place, which will be visible in all its phases to the residents along the eastern coast of the United States and Canada. For localities half way across the continent, part of the eclipse will happen before sunset, while the sun is still above the horizon and the moon below it, and consequently invisible. On the Pacific slope, the eclipse will end about the time of moonrise.

At the time of an eclipse, we realize that the earth and moon both cast shadows. Ordinarily we are not aware that a shadow exists until it falls on something. When the moon passes into the shadow cast by the earth, we have an eclipse of the moon, which is total or partial, depending on whether the moon is wholly immersed or not. When the earth passes into the shadow of the moon, there is an eclipse of the sun.

If one, however, would only take the trouble to look, he could see the shadow of the earth each clear day, without having to wait for an eclipse.

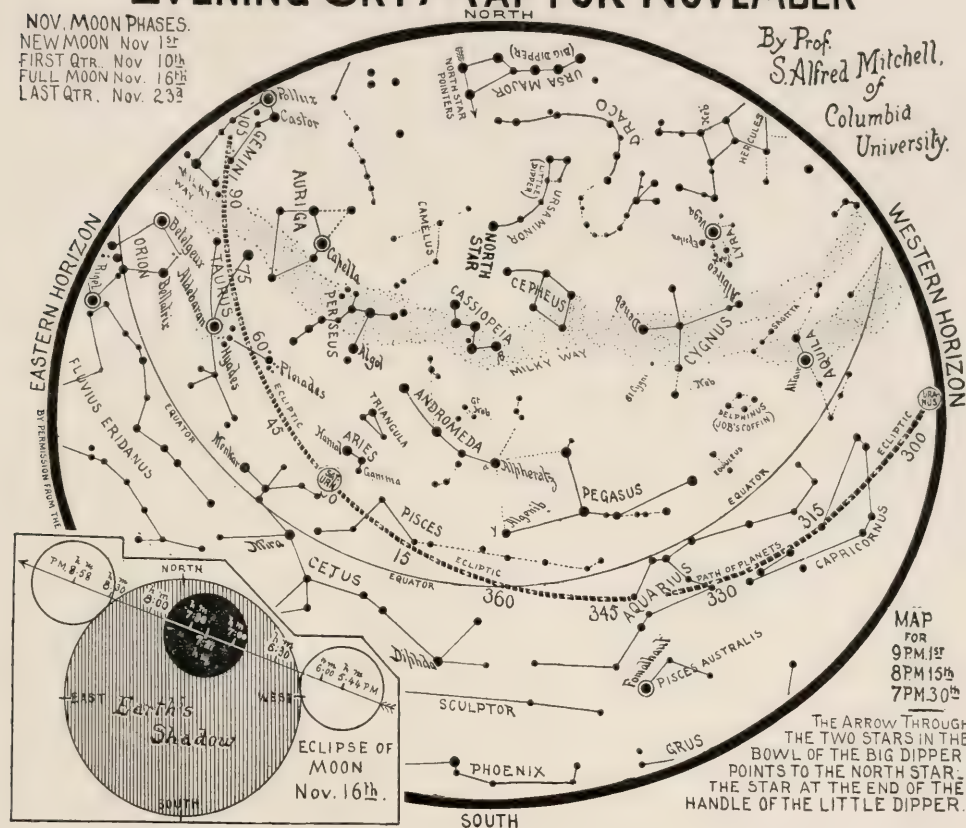
How many of us have looked towards the east while the sun is setting, to see what was happening there? We are all of us very familiar with the sunset colors and the glory of the departing day by looking towards the west.

The next clear day you experience turn your back on the west and face the east, and see if you cannot find something there almost as interesting. The earth must cast a shadow, and if this shadow falls on any solid bodies, we will become aware of it? How, then, about the solid particles in our atmosphere, the dust specks? We can see these when a ray of sunlight shines across a darkened room. The dust is carried many miles up into the atmosphere, and the beam of the electric searchlight across the night sky makes it plainly visible. The dust is generally least after a heavy rain. If it were not for the dust and water vapor in the atmosphere, darkness would settle down on the earth very quickly after sunset, twilight would be very short. Twilight is caused by the reflection of the sun's light from the solid particles of our atmosphere, and is ordinarily supposed to be lost until the sun has sunk eighteen degrees below the horizon. And if the sunset colors and twilight arc make the dust in the atmosphere visible, why cannot we see the earth's shadow? We can see it, if we only try and observe it. On a clear evening shortly after sunset one can see the colors of gold and pink also in the east. As the minutes pass, these colors gradually fade and are pushed up from the horizon by a bluish gray darkness. If one has a good view of the eastern horizon, he will see this grayish color gradually rising up from the horizon in the form of an arc of a circle. As the time goes by, this arc mounts higher and higher. The highest point of this arc is exactly opposite the point where the sun sets. This is the shadow of the earth on the sky which appears as the shadow bow. By

imperceptible degrees, as the twilight lights fade away, the shadow bow rises higher, the golds and pinks above become less pronounced, the shadow bow fades into the darkening sky, and night comes on. Thus can we realize that the earth casts a shadow.

but is inclined to it by a small angle, a little more than five degrees. To have an eclipse of the moon, our satellite must pass into the earth's shadow, or in other words, the moon and sun must be on opposite sides of the earth, the moon rising at sunset and the moon

EVENING SKY MAP FOR NOVEMBER



As everyone knows, the earth moves in her orbit about the sun in the ecliptic (so called because eclipses occur only when the moon is near it). If the moon moved in her orbit also in the ecliptic, there would be two eclipses each and every month. At the time of new moon our satellite would come between us and the sun, and there would result an eclipse of the sun. A fortnight later, the moon would pass into the shadow cast by the earth and a lunar eclipse would take place. But the moon's orbit is not in the ecliptic,

full. Since the earth and sun are in the plane of the ecliptic, the earth's shadow is likewise in this plane, and an eclipse of the moon can occur only when the moon is near the ecliptic—or expressed in technical terms—near her node. If the moon is in the ecliptic at the time of full moon, she will pass through the centre of the earth's shadow, and a long total eclipse will result. The farther the moon is from the ecliptic at the time of full moon, the shorter will be the duration of totality. Evidently it is easy to calculate at

what distance it is possible for the moon to be from the node of her orbit and still have an eclipse take place. Since the motion of the moon is well known to the astronomer, it is possible for him to calculate many years in advance the time at which an eclipse of the sun or moon will take place. In a remarkable German book by Oppolzer, there is given the elements of all the eclipses which occur for the next two hundred and fifty years, and by a glance at a map one can tell where to travel in order to see any eclipse of the sun during that interval. Not only can the astronomer by his calculations see into the future in such a remarkable way, but he can look back into the dim and misty past, and this same both tells when and where all eclipses have taken place during the past thirty centuries, to the date 1207 B. C.

The accuracy of astronomic prediction in the case of Halley's comet caused all to wonder at the exactness of the grand old science of astronomy, but eclipses can be foretold with a precision far greater.

Since the moon moves in her orbit in an easterly direction, it overtakes the shadow of the earth and a darkening appears first on the eastern edge of the moon. The appearance of the moon as it crosses through the shadow is well shown by the diagram above. At 5.44 p. m. Eastern Standard time, the moon enters the shadow and the eclipse begins. For the next hour and eleven minutes, more and more of the moon's light is cut off and at 6.55 the eclipse becomes total. The middle of the eclipse takes place at 7.21 p. m. It is then noticed that though the moon has suffered an eclipse, there is still light, the moon appears as a dull copper color. This light in the earth's shadow is covered by the bending or refraction of the sun's rays by the atmosphere of the earth. The sun or moon appear red to us when in the horizon, rising or setting, because the atmosphere has robbed the white light of all but its red rays. In passing round to the moon at the time of its eclipse, the sun's light has to pass again through a great layer of atmosphere

with the result that the moon appears a very deep red.

The eclipse of November 16 is not a long one, totality lasts for less than an hour, and at 7.47 p. m. the moon begins to emerge from the shadow and the eclipse is over at 8.58. The whole eclipse from beginning to end lasts a little more than three hours.

The eclipses of the moon are uninteresting compared with eclipses of the sun. At the latter eclipse, when total, the magnificent corona appears, the most gorgeous of all natural phenomena. There are then many vital problems about the sun that the astronomer is anxious to solve, and so eclipse expeditions are a very important part of solar research. The writer has traveled about thirty-five thousand miles in observing such phenomena. Regarding the moon there are few questions left to solve, and the fact that the moon passes into a shadow is generally of little interest to the average practical astronomer. In fact, it might even be said that most professional astronomers would prefer to have the moon perpetually eclipsed, for then many added hours could be given to the photography of the sky—with which the moon interferes by fogging the plates.

The moon during an eclipse has been photographed repeatedly, the best results perhaps being those obtained by Professor E. E. Barnard. If the moon has a small satellite—which is not impossible—it will be detected in this way. A photograph of such an eclipse renders evident that the moon is moving eastwards among the stars, and the length of the exposure given would make it plain that the moon is moving its own diameter in an hour.

In the diagram above the moon and shadow are drawn to scale and represent exactly the appearance of the eclipse. One must not be confused with the position of the north. This has no reference whatever to the horizon, near which the moon will be when the eclipse begins, for north is the direction towards the north pole of the heavens, or the North Star. On the diagram is also marked the times at

which the centre of the moon will have the position relative to the shadow as indicated. Take a dime and move it along the line of the moon's path, as shown by the arrows, and one should see at a glance the exact appearance of the moon at any specified time. All of the times are exact for all localities where Eastern Standard time is kept. If Central time is used, subtract exactly one hour from the times given. For Pacific time, subtract three hours.

Mercury, Venus and Mars are too

close to the sun to be seen during the month. Jupiter rises an hour and more before the sun and is a morning star.

Saturn rises about sunset and is in a splendid position for observation. It is still in the constellation of Aries, and near no bright stars.

Uranus is low down in Sagittarius, with a large southern declination of 22 degrees.

D'Arrest's comet, discovered nearly two months ago, is still observable as a twelfth magnitude star.



Beetles and How to Collect Them.

BY MARTIN BOWE, PROVIDENCE, RHODE ISLAND.

[This article contains good, definite directions for the beginner in the collecting of beetles. Mr. Bowe does not assume the possession of expert knowledge, and therefore perhaps has been better able to come into helpful and sympathetic relations with the beginner.—E. F. B.]

If you want to get in close touch with nature, make a collection of insects. The quest will take you away from the beaten paths; it will induce you to disregard the wire fence for the sake of the woods beyond; it will make you acquainted with trees and flowers and will provide you with plenty of healthful exercise. Of all insects, beetles are perhaps the easiest to collect. They do not require so much time and care in mounting as do the butterflies, and they will keep unchanged for a long time, if protected from too much light, dampness and injurious insects.

The order of *Coleoptera* or beetles is divided into numerous families, and these again into genera and the genera

into species. There are more than ten thousand species listed in the United States, divided into one thousand genera or from seventy to eighty families. Some of them may be found anywhere, although most of them have their geographical limits. The check list of the District of Columbia contains three thousand species and that of Rhode Island one thousand.

While there are many books on moths and butterflies, books on beetles are scarce. Comstock's "Manual for the Study of Insects" contains a key for the families. Another is "Beetles of New England and their Kind," by Edward Nobel, published by Bradlee Whidden, 18 Arch Street, Boston. This book is out of print but may be occasionally found in the bookstores. It is illustrated and is useful to those wholly unacquainted with beetles.

The best way in which to make an orderly collection is to arrange the beetles in groups, with the different families in the succession in which they are named in the check lists. These lists may be obtained from the museums of the different states. For



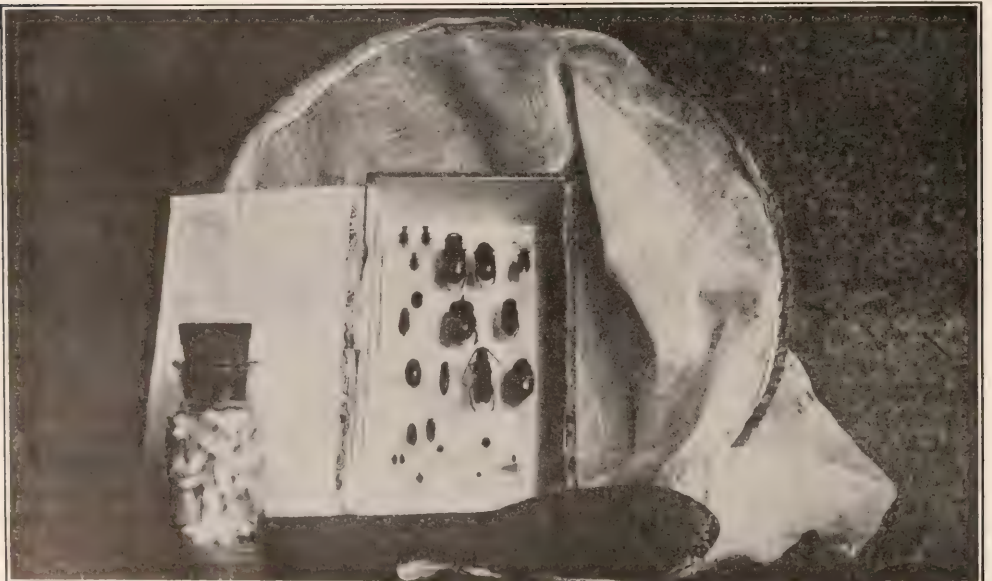
FOR THE SAKE OF THE WOODS BEYOND.

naming the genera and the species, most of the larger beetles may be readily identified by the aid of other collections. But there are some genera in which the marks, that distinguish the different species (*Bembidium*, for example) are so slight, that even prominent collectors do not attempt to name them unaided. In such cases the only way is to send a box of them to the

Entomological Department in Washington and have them identified.

Every unidentified beetle in the collection should be labelled with date and locality, as without such information it is sometimes impossible to learn the proper name.

Beetles, like other insects, have to pass through three stages (egg, larva, pupa) before they become adults.



SOME APPLIANCES OF THE BEETLE COLLECTOR.

Some of them, like the ladybugs, require only a short time to go through the different changes, so that there may be two broods in one year; others (some buck beetles) need from three to four years to reach the mature form. As perfect insects their life is generally short, most of them dying after they have mated and laid their eggs.

The season for collecting is from April till November, but certain beetles go into winter quarters in their perfect state and lay their eggs in the spring. These can be secured during the winter months.

The boxes intended to hold the collection should be well made, so that

ounce, wide-mouthed bottle with a few pieces of cyanide of potassium at the bottom, covered with plaster of paris. The bottle is then filled with strips of white paper, to absorb the moisture and to keep the beetles from mutilating one another. The paper must be changed occasionally. The cyanide will be effective for a year. Those who do not care to handle this deadly poison may substitute alcohol. There are only a few beetles (*Lixus*) that will be injured by coming in contact with liquids.

The net is made of cheese cloth. Folding net frames may be had at sporting goods stores. They are intended for



ROADSIDES ARE ATTRACTIVE AND PRODUCTIVE COLLECTING PLACES.

no dust nor insects can find access to them, fourteen by eighteen inches and three inches high (with cover on) and with either wooden or glass tops. The bottom is covered with cork or peat one-fourth inch thick and the whole lined with white paper. A moth ball should be secured in each corner as a protection from insects. The boxes should be kept in a dry place, as mould will destroy a collection as readily as insects.

The articles required for collecting are the poison bottle, an umbrella, a net, a small spade and a white cloth.

The poison bottle is a two or four-

fish landing nets. It is an easy matter to reduce them to the proper size. For aquatic beetles use a net made of mosquito netting. It lets the water through easier. For a spade a bar of steel fifteen by one and one-half by one-quarter inches is required. One end is forged into a spade; two holes are made in the other end and two pieces of wood, one-quarter of an inch thick, screwed on for a handle. This makes a good instrument for breaking up tree stumps and for lifting bark and moss. A piece of white cloth about four feet square is handy in the woods. Fungi and bark may be broken



INTERESTING "FISHING" FOR AQUATIC BEETLES.

above it and the beetles cannot escape. The umbrella is used upside down under trees. A branch is given a sharp blow with a stick and all the insects upon it will drop into the inverted umbrella.

It is not always convenient or possible to mount the beetles, when one comes home from an excursion. In this case they may be stored in cigar boxes or in tin tobacco boxes on layers of cotton. Use moth flakes for disinfecting and do not forget to put labels between the layers to record the

time and the place. Before mounting, the insects must be relaxed. For this purpose a saucer is filled with wet sand. The beetles are put on white paper on top of the sand and the whole covered with a bell jar for twenty-four hours. All beetles are mounted on special pins called insect pins. These are thrust through the right wing and care must be taken so that when the pin comes out on the other side it shall not take a leg off. Small beetles are glued with mucilage or shellac on a triangular piece of stiff paper, which



HOW TO USE AN INVERTED UMBRELLA UNDER THE BRANCHES OF A TREE.

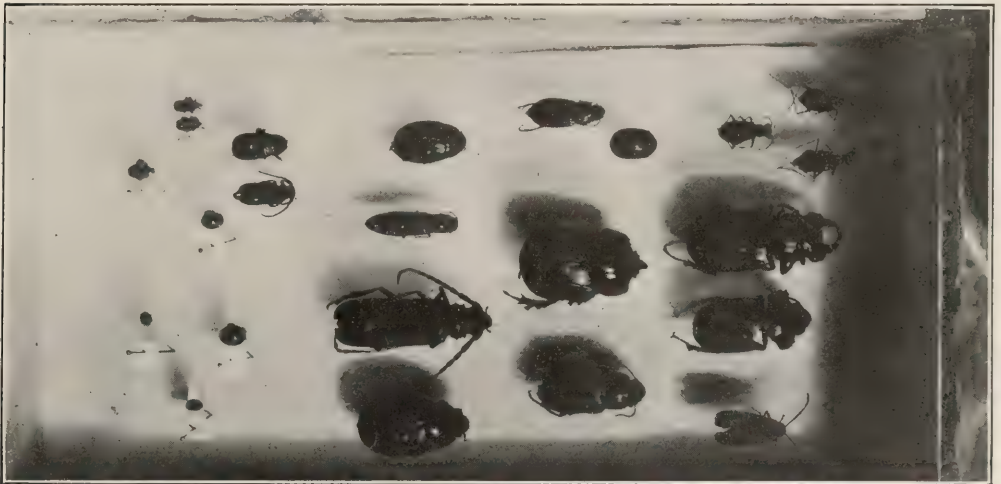
is then mounted on a pin. The label with name or date and locality is then placed in the box and secured by the pin, that holds the beetle.

Electric lamps, especially those on the outskirts of a city, draw beetles in great numbers every warm night. June bugs, water beetles, ground beetles, carrion beetles and others can be collected in this way. Tiger beetles are found on the sandy shores of fresh or salt water, in cart roads, in woods; ground beetles under leaves, stones, bark, in grass; *Staphylinidae* on carrion, fungi, decaying wood; *Buprestidae* on flowers, on the sunny side of piled-up

valuable. Some are not larger than a flea and they jump too.

If mould should attack a collection, the affected beetles should be dried in an oven. If the buffalo bug is discovered, a little bisulphide of carbon must be poured into the box, which then should be tightly closed.

More might be said about collecting beetles, but I don't know any more. I am not an authority and if any one knows about other methods, not mentioned here, I should like to be informed, as I have just started a new collection.



IT IS NOT SO MUCH THE SPECIMEN AS THE MEMORIES WITH IT.

wood: tumble bugs in manure; buck beetles on dead branches, flowers; weevils on nut trees and fruit trees. Carrion beetles may be collected by trapping. A tin can, baited with stale meat, is buried, so that the top is level with the ground. A large hole is made through the cover.

In Germany large pits (three feet deep by three by six) are dug in some woods on one side of the road. They make traps for the larger beetles, which cannot climb up the sandy walls and which need more space to clear the top in flying.

Do not neglect to collect small beetles. The large ones are mostly common. Small beetles make a collection

Why Is It?

BY W. H. WISMAN, NEW PARIS, OHIO.
 Why is it that when winter comes,
 And raging winds drift high the snows,
 That I, to keep from freezing, must
 Put on such heavy clothes,
 While all the trees around me, that
 Were dressed in summer garb so pleasing,
 Take off their clothes in winter time,
 To keep from freezing?

They met by chance,
 They never met before;
 They only met that once,
 And she was smitten sore.
 They never met again;
 Don't want to, I avow;
 They only met that once—
 'Twas an auto and a cow!

CORRESPONDENCE AND INFORMATION

The Carnegie Institution's Injury to Mr. Burbank.

Santa Rosa, Cal.

To the Editor:—

The article which you have in regard to my joys, troubles and work am quite sure will be interesting to your readers, and is most certainly so to me, and I am sure that in due time you will be very glad that you published these words, for I have many friends as I have learned of late who know that the work of envy and jealousy is of short duration, and I have been troubled by nothing else.

Of course in having to wholly revolutionize my work to make it commercial instead of scientific have been

obliged to make radical changes in all my plans in every respect, at an expense of many thousand dollars in cash and many more in loss of plants, but during the last eight months have gotten things into good order after the storm, and if any public institution undertakes to meddle with my affairs again it will be after I am unable to attend to my own business, which I was doing in a most splendid and satisfactory way to myself and everybody else before the interference of the Carnegie Institution and the envy and jealousy which it brought forth.

With most hearty kind wishes, I remain, as always,

Faithfully yours,

LUTHER BURBANK.



THE BURBANK THORNTLESS CACTUS.

Photographed by Edward F. Bigelow, at Santa Rosa, California.

A Nature Prayer Meeting.

Methodist Church, Stamford, Ct.
To the Editor:—

I am not surprised that you should have been sufficiently interested in our nature evening prayer-meeting, that you should remind me of my promise to write you the particulars. You see it was just this way; the birds were singing so sweetly their carols of praise and the hills were clothed in such majestic beauty that for the time being this other volume of revelation seemed to command our immediate attention in its messages of God writ large. So one Sunday it occurred to me to announce for the subject of the next prayer and conference meeting, "In God's Out-of-Doors," suggested by the title of Bishop Quayle's book. By the way this man is a wonder in reading the spiritual language of the natural world. Not knowing just what response the proposal would command, I went around and urged privately some of the faithful to be ready, lest by any means there should be a tendency to slip up on this unusual subject. To my personal astonishment, not one of those who came thus fore-armed had an opportunity to get in a word crosswise or edgewise. People who had never lifted their voices in meeting before were eager to tell of the deep thoughts and high appreciations which God had given them through the media of nature. There was a freshness about it which reminded us of the days when the greatest of all preachers used to stand by the wayside scattering the seeds of truth, and calling attention to the flowers of the field and the birds of the air, as suggestive of the rich providences of God. I cannot reproduce the language or the telling references, but I will show you how the matter gripped the people by stating that we remained together long after the usual hour of closing, and almost as many were ready to speak when the benediction was pronounced as when the first reference to nature was made by a dear old man who discovered a tiny insect, and carried it to the shop where he works, and there feasted his eyes upon its wonderful

decorations with the aid of a magnifying glass which he keeps with his rougher tools for just such a purpose. Doctor, more nature in prayer-meetings, and more prayer in nature-meetings would be a mighty fine adjustment.

Yours truly,

CLAUDE H. PRIDDY.

Read and carefully reread this letter. From the naturalist's point of view it is remarkably good, better, perhaps, than intended or realized. It tells us that Christ, "the greatest of all preachers," dwelt constantly with nature in its truth and in its love—"the rich providences of God." It admits that His followers seldom so live. Nature under consideration is so strange to His followers, they are so ignorant of all that pertains to nature, that the pastor feared the prayer meeting would prove a failure. On the contrary, to his "personal astonishment," it was amazingly successful, because "people who had never before lifted their voices in meeting were now eager to tell."

You are right, Reverend Mr. Priddy. Your own church and all others need not only more "nature in prayer meetings" but in all other meetings and all the time. You and your people need to follow more carefully the example of Christ, the Naturalist, to study and to appreciate more the Living God in His Works of the Present—not in those events that were, centuries ago, recorded as samples of His Work.

Says Ralph Waldo Emerson, most truly:

"The foregoing generations beheld God and nature face to face; we, through their eyes. Why should not we also enjoy an original relation to the universe? Why should not we have a poetry and philosophy of insight and not of tradition, and a religion by revelation to us, and not a history of theirs?"

I am glad, Pastor, that you wrote of the prayer meeting exactly as you have written. If a naturalist by profession had so written, some one might have thrown a big word at him—materialist; might have said it was a slur on the

church. Now it is a confession that the church must answer for a fault of omission.

But do naturalists pray? Why don't they, as you suggest, have more "prayer in nature meetings?" Because they cannot have *more*. They pray all the time, now; with every effort of body in persistent work; with tensest strain of mind in closest thought. They pray, if they are worthy of the name of naturalist, for more truth, more love, more insight and closer relations to the great Infinity of His Works. They pray by long tours, persistent searchings, diligent use of collecting case, by every device for experimental aid or optical use. They press forward, and long to see face to face and not as now—through a glass darkly. They constantly practice what in this letter you have preached so well.

I once wrote a little Fable. Here it is. Put it on a placard and hang it in your chapel, and we will hang in our room for "nature meetings" anything you may send.

"And the Minister preached and became eloquent about the Glories, Manifestations and Inspirations in God's Universe. He told Parables and drew Arguments from the Natural World. He sang in smoothly flowing Stanzas of the Magnitude of the Solar System and of the Exquisite Perfection of the Flower. And the Congregation heartily said, 'Amen!'

"And, Behold! A Listener went forth to Test the Truth, to try to practice these Teachings. Then Humanity passed along and said, 'He has a Bug House; there are Wheels in his Head; he delves in Things Uncanny.' And even the Minister as he went by remarked, 'Why you Thought I actually meant what I Said!'"—E. F. B.

"We love things not because they are beautiful but they are beautiful because we love them."

Ball or Globe Lightning.

New Rochelle, New York.

To the Editor:

I have been greatly interested during the last summer in what is called ball or globe lightning. One of my neighbors having witnessed such a phenomenon and described it to me in a letter, I sent a copy of the letter to the "English Mechanic," and asked an explanation of it, but instead of an explanation numerous letters were sent to the editor describing similar appearances. I then sent the same letter to the "Scientific American," with the result that I have received many letters from all parts of the United States and Canada describing the most marvelous appearances of electric balls that can be imagined.

Thinking that these stories were mostly imaginary, I wrote to the Chief of the Weather Bureau at Washington and asked about them, and his answer is that the descriptions I have received are probably correct and that there is abundant evidence of their reality.

These fireballs are seen during thunderstorms, and are evidently electrical, but do not conform to the well-known laws of electrical phenomena for these balls move slowly compared with electricity or lightning, and sometimes, but not always, explode with great violence.

Yours truly,

J. D. HYATT.

(EXTRACTS FROM LETTERS FROM OTHER OBSERVERS.)

The phenomenon described is without doubt a form of lightning discharge to which the name "ball" lightning has been applied in this country and "Kugelblitz" in Germany. This form of discharge is the most remarkable and the most puzzling of the different forms of lightning. It moves with only moderate speed and its track can be easily followed by the eye. Sometimes it vanishes without noise and again with deafening explosions. In earlier days it was often explained as an optical illusion but so many careful observers have described it that there can be no longer any doubt of its re-

ality. Much has been written upon it although no sufficient explanation has yet been offered.—A. J. Henry, Executive Officer in Charge Research Observatory of the Weather Bureau, Mount Weather, Virginia.

I have at all times taken considerable interest in astronomy and have studied enough of that science to be able to reasonably account for all the ordinary phenomena that happen to appear in the sky. However that may be it was my experience on a certain occasion to see something so unusual that it was then and has ever since remained a puzzle to me. At the time I attributed it to some form of electricity or what I suppose you in your letter call a "fireball." What I saw occurred several years ago and, as near as I can now recollect, in July or August at about two or three o'clock in the afternoon. I was at the time sitting on the veranda of a house a few miles from the city of Petersburg, in this Province, watching a rainstorm coming from the southwest. There was nothing unusual either in the amount of wind, rain or lightning and what thunder there was, was low and distant. Suddenly as I was looking towards the point from which the storm was coming I saw about half way up the horizon a dark red ball apparently the size of the moon. It seemed to form instantly or else to suddenly emerge from a dark cloud. There was nothing dazzling about its appearance and it came to the south of where I was sitting, going, as it were, in the same direction as the storm. The line of flight was straight but in a direction towards the earth. Its motion was somewhat faster than the storm but not so fast but what I could most distinctly see its shape and color and follow its flight with my eye. Its speed was about as fast as that of the meteors seen in the months of August and November. I saw no sign of a trail of light behind it and, had there been any, I am certain I would have seen it as the sky was heavily overcast at the time. In front of me ran a zigzag rail fence and at about one hundred yards from me one end of the top rail had fallen down so that the other end pro-

jected upward two or three feet. I saw the ball strike the upper end of that rail and almost instantly there came a crash like the discharge of a large field gun. There was no sound as of a body rushing through the air and there were no scintillations of light from the point of the rail, but that ball of dull red light vanished instantly the moment it came in contact with that point. The concussion from the sound shook every window in the house and broke a pane of glass in one by me. Every one in the house rushed out to where I was to inquire the cause. The sound was not like the tearing or rending sound following a close discharge of lightning. It was, as I have said, just like the explosive sound that comes from a cannon. No special downpour of rain followed, although later on there were some fairly vivid flashes of lightning with the usual rumbling sounds or thunder. The shower lasted for about half an hour longer and as soon as it was over I went with others and viewed the spot where the ball appeared to strike the rail. To my astonishment there stood the rail without the slightest sign of a mark on it. We searched the ground for some considerable distance around and found no appearance of disturbance and that ball of fire has ever since remained a mystery to me. At the time I thought and still think the ball must have been electric. What has, however, always puzzled me about it was its slow rate of speed—so contrary to all our ideas of electricity. That ball was more easily followed by the eye than any meteor I ever saw. If it had been a meteor one would naturally have expected to have seen a trail of light left behind it. It might be said, however, to have been what is usually termed an aerolite. If I understand an aerolite rightly is simply a meteor that reaches the earth. If what I saw came from the outside world then it must have been brought here by the force of gravitation. If it was, then it appears to me that by the time it reached here one would have been flying at an inconceivable rate of speed—so fast indeed that no eye could follow it. When

it reached here it would have left a mark of some kind and I do not see why it should explode like a cannon.

I have read of blazing bodies being seen rushing across the sky in broad daylight and exploding with sound of thunder but they are, so far as I know, always described as leaving a trail of light behind them. What I saw was a ball of dull red color flying comparatively slowly, leaving no trail of light, making no sound through the air, exploding on touching a point and leaving no mark to be seen afterwards. The only conclusion I can arrive at is that what I saw must have been some form of electricity.—F. D. Moore, Lindsay, Ontario, Canada.

During the summer of 1864, while residing at Baton Rouge, Louisiana, I witnessed the rare phenomenon of a freak of globular lightning which may be worthy of record.

My house facing the east, had its doors and windows open one Sunday afternoon when a thundershower came up. Seated about the room were my wife, her sister and mother, two visitors, gentlemen who were to entertain us with violin and piccolo, and myself. In the center of the room was a table with cover hanging low, upon which a newspaper had been carelessly thrown by myself as the visitors entered.

During the shower, plainly seen by every person in the room, a ball of lightning, apparently about five or six inches in diameter, came through the doorway, brushed against the table cover sufficiently to sway it back and forth, causing the newspaper to fall to the floor, then, turning at a sharp angle to the left, passed under a sofa in front of a fireplace and apparently passed up and out of the chimney. A terrific clap of thunder followed closely, and the rain fell in torrents for several minutes. Every person in the room felt the force of the shock in greater or lesser degree, one of the ladies being rendered unconscious for a few minutes, and it was later found that the strings of the violin were all broken, presumably by the action of electricity as the fiery globe passed between the two gentlemen who were sitting on

the sofa.—George W. Brown, Editor of Arizona-New Mexico Workman.

A large oak tree was struck near the top by a terrific bolt that practically shattered the tree. I happened to be looking at the tree at the moment of the stroke. A large, luminous, glowing ball hovered for some moments just at the point where the subsequent observations would indicate that the tree was struck.

My home is in Georgia. The foregoing and the following experiences were during afternoon thunderstorms.

The building is of two large rooms, a hall between, and open fireplaces at the outside ends of the two rooms. When both hall doors, or door from the rooms to the hall, are open, the two open fireplaces are in line, facing each other. A bolt struck the lightning rod on the north chimney, and instantly a luminous ball, fully two feet in diameter, rushed through the house and disappeared when reaching the open hearth of the south chimney. No shock or scorching were felt or observed. No furniture or person were in the path of the fireball.—Walter Hill, 302 Broadway, New York City.

Preservation of City Trees.

The "American Association for the Planting and Preservation of City Trees" has been organized in Brooklyn, New York.

It is evident that "Conservation" necessity applies to the city. The appeal says:

"The need of such a movement is felt throughout the entire country. In our own city we are cutting down annually three times the number of trees planted. The unsightly appearance of vacant plots before the homes of this city is fast becoming too numerous and the utter barrenness of some of our city blocks is much to be regretted. In other cities conditions are no better, indeed, in many instances are much worse."

Anyone desiring to help should address Miss H. M. Walker, 258 Argyle Road, Brooklyn, New York.

A Huge Puffball.

Ithaca, New York.

To the Editor:—

Has a larger puffball been found than this? It was eighteen inches high, fifty-two inches around the smallest diameter, and seventy inches the largest. It weighed twenty pounds, and

as follows. In the northwest heavy clouds were hanging; the southeast was nearly clear with a few light clouds here and there. The moon rose at about 9.30 P. M. and being near its full gave quite a light in our rare atmosphere. Quite a sprinkle of rain was falling from a cloud directly over-



A HUGE PUFFBALL.

It is eighteen inches from top to bottom.

was found at Bluff Point, Lake Champlain, New York, in August, 1910.

Truly yours,

GEORGE M. GOULD.

Rainbow at Midnight.

Evans, Colorado.

To the Editor:—

On the evening of June 24th, a number of young folks, of which I was one, leaving a party, had their attention called to an unusual sight—a rainbow at near the midnight hour. The conditions of the sky at the time were about

head and the light from the moon in the southeast made a plainly discernible bow in the northwest, the top of whose arch reached, I should say, two-fifths of the way to the zenith and extended to the earth on either side making an arc which was the largest of any rainbow I have ever seen. The colors could not be made out. When first seen it was 11:25 P. M. and was at its brightest a little after 11:30 and lasted some ten or twelve minutes. Has anyone else ever observed a similar phenomenon?

A SNAKE AND A TOAD.

While irrigating one night by aid of light from a lantern and the moon, I heard a peculiar noise, not unlike the squeal of a rabbit when injured, or if a rat were to give quick sharp squeaks I think it would parallel the sound I heard. Taking the lantern we investigated and found a small garter snake attempting to swallow a toad. He had made away with one of his hind legs and the poor toad was begging hard for its life, needless to say we temporarily, at least, rescued it. I have seen a number of attempts of snakes to swallow toads but never before have I heard the toad utter a remonstrance with that penetrating sound. Is it usual or unusual? Since writing this I have talked with a man who was helping us to irrigate and he says he has heard toads squeal on other occasions when snakes were trying to swallow them.

EARL LYND JOHNSON.

Two Interesting Tree Studies.

Princeton, Massachusetts.

TO THE EDITOR:

I enclose two photographs of natural curiosities in tree growths of great interest to me; one a chestnut about thirty feet high leaning over a stone wall on the edge of a thicket. The main stem has been bro-



A CURIOUS CURVE IN A TREE.



A LARGE BIRCH TREE GROWING OUT OF A CHESTNUT STUMP.

ken down some years ago by an ice storm (frequent here) and then started up again as shown. The lad is my nephew, an interested companion on many of my nature walks.

The other photograph shows the remains of an immense chestnut stump, where years ago a seed of a yellow birch took root in its decaying heart and has grown into a large tree showing four main stems and about a dozen perpendicular roots laid bare by the falling away of the decayed wood of the stump. These two trees grow near each other in the same woods, and the photographs I made this last spring.

Sincerely yours,
J. HARRY ALLEN.

Further Observations of Red-Winged Blackbird.

Black River, New York.

To the Editor:—

In the September number of THE GUIDE TO NATURE is a note by Edwin W. Humphreys on the actions of a certain red-winged blackbird, which seems to call for comment. Evidently this species is not a familiar acquaintance to the writer in question, though his guess was undoubtedly correct as to the explanation of what he saw.

The redwing has a characteristic habit of hovering over an intruder or

his property exactly in the manner well described in the note by Mr. Humphreys. It is a safe demonstration of anxiety, if not actually a ruse of the bird; for the nest would seem to be each and every tussock and bush, to judge only by the bird's rather widespread alarm. Often several of the redwings will be hovering above you at once as you pass through a swamp they have colonized.

Male and female alike have this anxious hovering habit, usually accompanied by loud cries in case of the male, and by a feebler note from the female. Nor is the habit by any means confined to the redwing. Many birds differing widely in other respects, being distributed among many families, have the same habit. Some of these are the kingbird, tree swallow, some ground-nesting sparrows; though with no bird of my acquaintance is the habit as well marked as with the red-winged blackbird.

EDMUND J. SAWYER.

Was it Feigning Death?

Brooklyn, New York.

To the Editor:—

Was much interested in the article on "Our Wrens," in the September number of your magazine, and also in the "Interesting Observations of a Red-Winged Blackbird." Such instances of intelligent mother love exhibited by our little dumb friends always give me a thrill of something akin to awe; as if for an instant were unveiled an inner shrine behind nature's sterner front, where an enfolding tenderness broods untiringly.

I had a similar experience, though less striking, with a wood thrush in one of my walks last spring in the woods near Washington, D. C.

I was walking along a narrow forest path where a dense undergrowth crowded close on either hand. I heard a sudden sharp rustle in the dead leaves under a bush just ahead. I stopped and listened. The sound was repeated. Stooping down I looked under the bush, and saw a wood thrush lying prone upon the ground with out-stretched wings, her large brown head sunk down in her

breast and her bright black eyes looking up at me with a watchful and calculating scrutiny that impressed me as quite out of keeping with her attitude of helplessness and pain. As I stood quietly watching her, uncertain as to what her real condition was, she attempted to raise herself, fluttering her wings and rustling noisily with her feet in the dry leaves, only to sink back again helpless as before. Not wishing to torture the mother heart I passed on. Returning in about twenty minutes I looked under the bush again. No bird was to be seen or any sign, nor any sign of her presence.

I could not, of course, be sure that this was a genuine case of feigning for the protection of her nest, but it seems quite reasonable to assume that a bird really so wounded and disabled as she appeared would not have rustled so noisily when she felt herself safe and hidden from observation, nor would she have had quite so confident and judicially questioning an expression on her bright little face if really in such a state of decrepitude as she so cleverly assumed.

FRANCES BLAKELY.

How One Finds God in Nature.

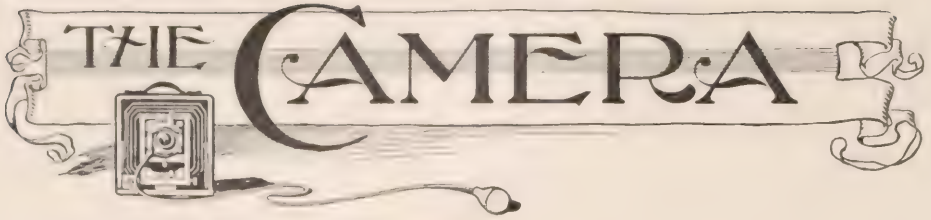
"I have been a botanist for fifty-four years. When I was a boy I believed implicitly in God. I prayed to him, having a vision of him—a person—before my eyes. As I grew older I concluded that there was no God. I dismissed him from the universe. I believed only in what I could see, or hear, or feel. I talked about Nature and Reality."

He paused, the smile still lighting his face, evidently recalling to himself the old days. I did not interrupt him. Finally he turned to me and said abruptly,

"And now—it seems to me—there is nothing but God."—David Grayson in "Adventures in Contentment."

Nature will be found as busy in November as in April—perhaps more so. —*Buckham.*

THE CAMERA



Exquisite Workmanship in Glass.

It is only a small piece of glass—just one inch in diameter, yet it costs \$51.50. It seems an outrage on the purchaser of a camera. The old glass is almost as large, has the same length of focus, and is supposed to be as nicely adjusted for perfect lines—is “rectilinear,” as it is named—and the cost is only a few dollars. It is a long time since I bought one, and, when I think of it, I do not recollect that I ever did buy one separated from the camera. Even the makers did not seem to value it, for they “threw it in” with an automatic shutter, that trial of one’s life.

“But of what use is the camera without lens and shutter?” you inquire.

No use, of course, except as a pin-hole device. And “nothing” is about the price at which the makers seem to value the whole optical attachment.

“But what will you sell the ‘box’ for without lens and a shutter?” did you inquire.

“Oh, just the same. It is against our rules to sell a camera without a lens and a shutter.”

“But what will it cost for a better lens—Say a Goerz Dagor instead of the regular?”

“Oh, that will be \$47.25 extra.”

“Whew! you do not mean to say that you value that lens at only \$4.25 and the other costs \$51.50—same size (almost), focus and everything?”

“That’s about it, and there will be \$15.00 extra for a shutter.”

“Can’t see it. Oh, my! that’s an outrage.” And you take the elegant box and the poor piece of glass, and start for the fields and woods, with a grudge against all makers of anastigmats, muttering that you know they can get the price from some rich fellows, who buy not because the lens is worth the cost,

but to say that they paid \$51.50 for it—as if the \$51.50’s are their kind and the \$4.25’s for “the mob.”

Then you go on for a few years, stopping down and giving plenty of time, obtaining now and then a masterpiece. Every detail is perfect. Wonderful depth.

“There, you see how it is. That shows it. Look at that photograph, and at that; they cannot be surpassed by any anastigmat ever made, which goes to show that it is all in ‘a name’—and that those Goerz people and other makers of anastigmats, trade on their reputation, and tax the rich fellow who wants to boast that he ‘paid more than \$50.00 for his lens.’”

Then your envy and ignorance become anger and you rush into print, and it all may be summed up in a story that I often heard in my boyhood. An old farmer was boasting about his decrepit nag: “I tell you, fellers, she’s got more speed and pluck than yer think. She can go to Hartford just as quick as any of ’em if yer only give her time.”

Your ‘old plug’ of a decrepit lens gets “to Hartford” in a similar way. But by and by you discover that there are occasions when you haven’t time to “give her time.”

Then the day comes when a friend invites you to his home to see his den, and he shows you walls covered and boxes filled—every one good, and seventy-five per cent. far and away better than your three best. You climbed the stairs, with an ugly look on your face, your teeth clinched, and you firmly intend to tell him a thing or two, and to prove that this talk about anastigmats is all nonsense. You had been running it over in your mind, and had decided to sneer at his lens, and say, “I tell you,

my friend, this talk about high priced lenses is foolishness. I have one which cost not more than \$5.00 or \$6.00 that I bought from Jones and is worth the whole kit and caboodle of Dagors and Celors, or other even higher priced anastigmats. I tell you it's the best lens I've ever seen in my life and I wouldn't take \$50.00 for it if I couldn't get another like it." You were thinking all that and more in the same key. And you were determined to teach the fellow something. But to your surprise, when you arrive in Brown's den, Brown says not a word that gives you an opportunity to argue. He gives you an easy chair and he brings out the pictures. When you have looked at about three, you begin to think that it may not be good policy to be too boastful of your own possessions. Brown brings out another box filled with photographs, and you feel glad that you have not committed yourself.

You examine a few more and, trembling, when you think what you intended to say, meekly inquire:

"Do most of your work with a Dagor?"

You hope he will say, "Yes, most of it, except where I need especial depth and definition; then I stick to my old stand-by, the rectilinear that I've had for years."

You are prepared to acquiesce. "Yes,



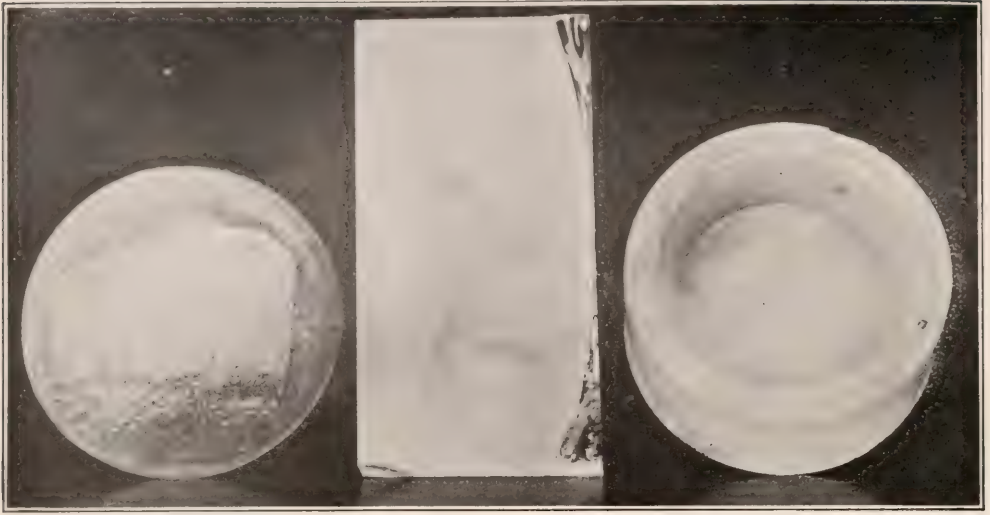
THE CAREFUL INSPECTION OF THE WORK.

for steady, all round work, outside of fancy stunts, there's nothing like a rectilinear—and once in a while you get one that is a regular jimcrack of a lens. I have such a one—one of a hundred."

But to your surprise, Brown gives you no such opportunity. He replies: "Yes. Dagor is my stand-by, except that once in a while I like to put on



THE LONG, TEDIOUS GRINDING AND CAREFUL POLISHING.



THE ROUGH GLASS FOR ONE LENS IN READINESS FOR GRINDING.

Celor and use focal plane. Then I get 'em and no motion too, even if I toss it up in the air. Can freeze 'em on the wing.

"Is that really so?" Don't you use your rectilinear for still objects?"

"Rectilinear! Bosh. Ought to have

thrown it in the junk heap years before I did."

"And do you really think these Goerz lenses are worth the price? Say, let me look through one at the landscape, will you?"

"Worth the price?" Well, I should say they are. No better anastigmats made—though, as you've seen by the catalogues, there are plenty that cost even more."

Then you carry the case and he the camera and his choice lens, into the back yard. There you get a view across the valley, and for the first time in your life you see through a real lens. And quietly, without speaking, you admit your years of misunderstanding, and that the lens is worth the price.

Then you go to see the Goerz people. They spread out on a velvet covered table the exquisitely finished glass and brass that you now recognize as for use and not merely to express pride of possession, yet the cost, the "outrage," still lingers in your mind.

You remark: "I suppose these will do a little better work than the rectilinear (mine is an exceptionally good one), but why do you keep up the fancy prices? Now I paid only —." That is your last reference to use and cost of your years of ignorant delusion. The courteous attendant invites you to visit

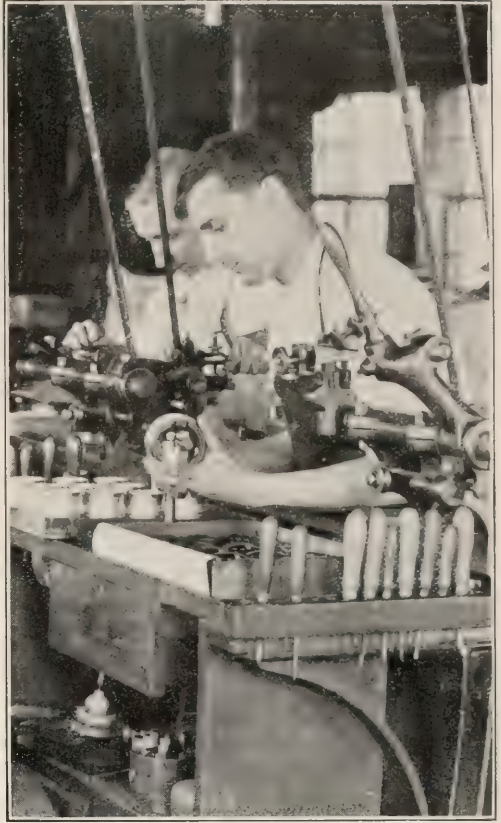


MAKING CAREFUL ADJUSTMENTS.

the workrooms, and when you come out of those rooms, "fancy price" has followed its twin, the "little better," to its grave—buried with the things of the past that you would like to forget.

When you have seen the careful selecting of the glass; the long, tedious grinding; the careful polishing; the delicate adjustments; the mathematical centering of the lenses, and, finally, the rejection of every one that is not absolutely perfect, you will exclaim: "The marvel is that so much can be sold at so low a price."

Consider too what a marvel of workmanship is an anastigmat lens. Six pieces of glass—twelve surfaces ground to perfect curves, and then all six accurately centered to one another, so that light is truly turned in its course—several prisms yet without prismatic coloring. Lines are brought from the extremes in every direction from the center—up, down, right, left, everywhere, and all treated by the lens with equal fairness. The objects whose light comes through the center of the lens, or near it, have no better treatment than those at the extreme margin. It is a tiny bit of exquisite workmanship to be held in tender appreciation—to be loved



THE FINAL PERFECT CENTERING.



PUTTING TOGETHER THE SHUTTERS.

—to be used with all your skill and care. But you must be all in all. You never will win the anastigmat till the rectilinear is dead, dead, dead. Then if you give your whole heart to the work, you may win the favor of this high-born personage. And when won—what a treasure! In a way that you never even dreamed of, it, for the first time, reveals to your admiring gaze, that first of all created things, created when “God said, Let there be light: and there was light,” and you will say, “If there ever comes a time when I lose you, then comes too the death of my camerist life.”

O Dagor and Celor—all honor to you and to the patient, persistent, skilled and learned men who have produced you.

A Photographic Cage.

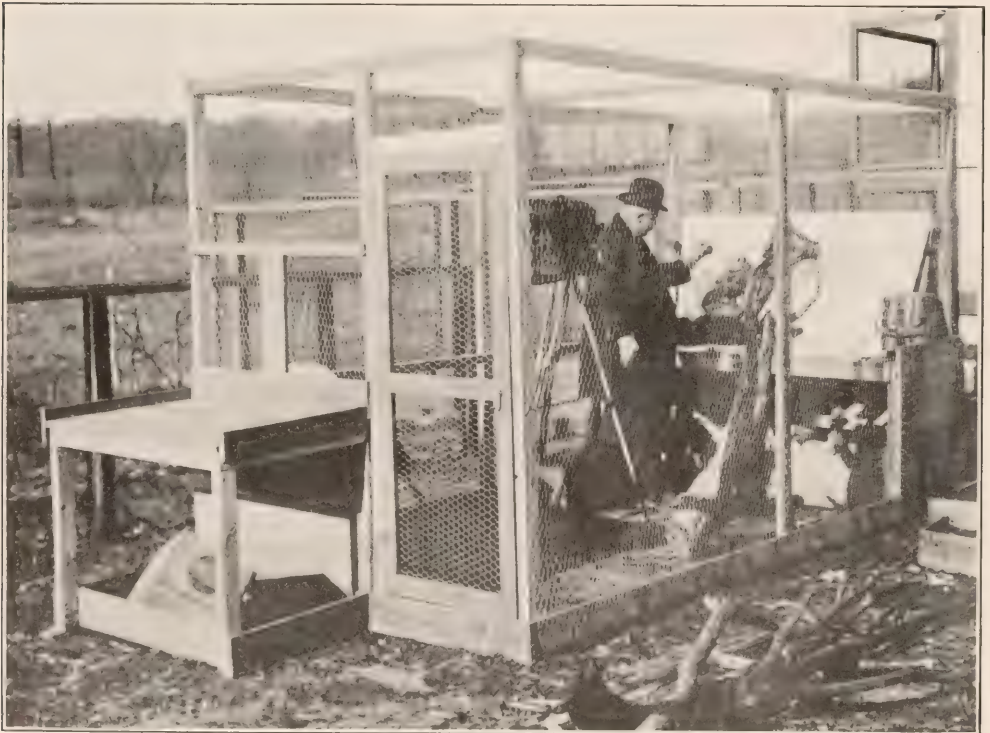
The accompanying illustration shows the writer in his photographic cage where he is posing an opossum for its portrait. Such a cage is inexpensive,

and should be owned by every naturalist who wishes to keep photographic records of his pets. Except on extremely bright days the shadow from the wire netting is not visible in the photograph and even then it may easily be eliminated by attaching a white sheet to the screen by means of a hook at each corner of the netting.

The outside bench at the end of the cage is designed for experiments with animals which are not likely to escape, such as snakes, turtles and other slowly moving or very tame pets. Since this photograph was taken an inner workbench has been devised with three large plates of glass attached so that the specimens may be confined within a transparent box.

How to Make “Fuzzy” Photographs.

I recently advertised for sharp photographs, not the fuzzy, foggy kind. These were for *THE GUIDE TO NATURE*, and also “Nature and Science,” of the “St. Nicholas” magazine. Perhaps the

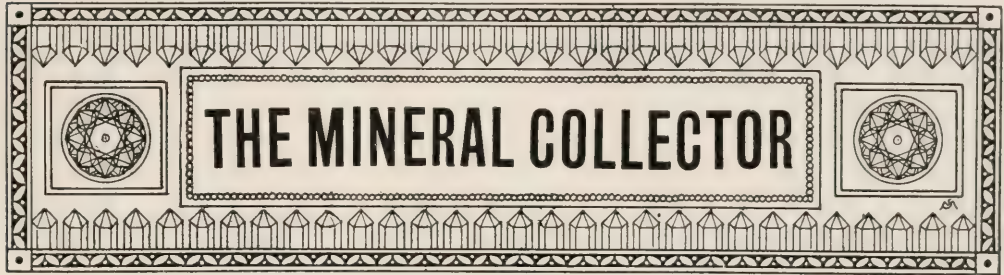


A CONVENIENT AND EFFECTIVE PHOTOGRAPHIC CAGE.
With inside and outside optical benches.

following from Mr. J. H. Jost of Halifax, Canada, will not only amuse but edify our readers.

"Kindly send me particulars regarding nature photographs. Might say that the fuzzy kind are not in my line and never were. I have no use for them. I see no art in them. One may send a painfully sharp print to the photo-engraver and ask him to

make a fuzzy out-of-focus half tone, and when the picture is reproduced the photographer is an "artist" for making such an atmospheric picture which the photo-engraver manipulated according to orders. And this is art! I regret to say that I am not an artist in their estimation nor will I ever be. I would like to write a chapter or two on this subject but space forbids right here."



Address all correspondence to Arthur Chamberlain, Editor, 56 Hamilton Place, New York City

Some Uncommon Bronx Minerals.

BY EDWIN W. HUMPHREYS, NEW YORK CITY.

Specimens of minerals may be interesting for various reasons, the commonest of which are probably beauty and rarity. It is the beautifully crystallized and colored specimens that usually attract the most attention; though of much greater interest to the collector and enthusiast are those of minerals that are rarely found in the region in which they were collected, while of superlative interest are those specimens which exhibit minerals never before found there. Of the minerals here mentioned, all owe their chief interest, apart from the personal associations, to their comparative rarity, though some possess also the charm of being well crystallized.

One of the minerals not commonly met with is chabazite, azeolite. Though reported from other parts of the Borough, I have found it at but one locality, in some hornblende schist at 175th St., just east of Third Ave. The mineral, as found there, is flesh-red in color and well crystallized in rhombohedrons that resemble cubes. While several good specimens were found, the mineral was not abundant.

Another rare mineral, and one that seems to be less common than the preceding, is green copper carbonate or malachite. This, too, was found at but one place, near West Farms, in the neighborhood of 174th St. and Southern Boulevard, where it occurred as a thin coating on a mass of hornblende schist, which had been brought there, probably, from a nearby excavation whose whereabouts I was unable to determine. Though thin, its color is the characteristic malachite-green which is, however, not uniform, some parts being darker than others. The incrustation covers about a square inch.

In the limestones, good crystals of rutile in which the termina are very well shown are occasionally found. This mineral is a compound of titanium and oxygen and is characterized by a peculiar steely, or as it is more technically called, subadamantine luster. In certain positions it appears very dark, almost black, in others reddish, particularly along broken edges, which are much lighter in color than the other portions. The best specimens were found along the Concourse in the neighborhood of 174th St. Some other specimens, I believe, were found between Washington and Third Avenues,

north of 170th St., but unfortunately they have been lost, so that I cannot be certain about this locality.

Probably the most interesting and rarest specimen of all is one of native sulphur. This was found in some mica schist at the chabazite locality mentioned above, 175th St., just east of Third Ave. While the sulphur is not in large pieces, yet the particles are big enough to be easily distinguished with the naked eye, some of them being more than a quarter of an inch long. The yellow particles, which are not crystallized and are embedded in a ferruginous matrix, stand out very plainly against their dark background. When a portion of the mineral is ignited, it burns with a blue flame and emits a sulphurous odor. When heated in a tube, it is volatilized and redeposited farther up along the tube. There can therefore be little doubt as to its being native sulphur. This detail is given because the specimen is of the greatest interest, since it is the only specimen of native sulphur

that I know of, which has been found in the Bronx, or in any other part of New York City. What its origin was I cannot say with certainty, but it was probably formed by the decomposition of pyrite or some other compound of iron and sulphur.

An Occurrence of Native Tin.

BY WM. C. BANKS, STAMFORD, CONNECTICUT.

A number of years ago I received from a New York City dealer in minerals a specimen of crystallized black cassiterite from Banca. I noticed, scattered over the crystals, a metallic white mineral in cavities, somewhat similar to the occurrence of mercury in cinnabar. It proved on testing to be sectile and malleable. On coal it gave the tin coating in both flames and with cobalt solution; in nitric acid, a white precipitate. I labelled it native tin. I have never seen this locality mentioned as yielding native tin. The specimen is at present in my collection of minerals.



Cottage Covered by Roses.

BY SECRETARY TO THOMAS W. LAWSON,
BOSTON, MASSACHUSETTS.

The accompanying photograph is a Cape Cod cottage situated in the flower garden at Dreamwold. It is known as "The Nest." There are a dozen or more cottages on the farm architecturally similar and all occupied, but "The Nest" was built particularly for Mrs. Lawson as a place in which to read and rest.

The Dorothy Perkins with which it is now almost completely covered was planted in 1905 from original stock obtained from a New Jersey company.

One thousand of these have been planted in the garden, none of which have winter-killed. It is probably the best of climbing roses, as it is not troubled with mildew, rust or blight, and has no attraction for rose-bugs. Those planted for "The Nest" are now over the ridge of the cottage, the sprays being from thirty-five to sixty feet long.

This year's flowering will be cut off close to the wood of last year, which will make next year's flowers larger and longer-lived. The Dorothy Perkins on "The Nest" bloomed about July first and those on the arches in the garden about a week later.



THE COTTAGE COVERED BY ROSES.

Courtesy of The Conard & Jones Company.

The Victoria Regia.

BY J. J. LEVISON, M. F. ARBORCULTURIST,
BROOKLYN (NEW YORK) DEPARTMENT.

Almost any pool or pond can be adapted to aquatic gardening and this is why the art is so rapidly coming into favor on many private estates and in some of our great parks. A group of irises, orchids, funkias or papyrus

will add a distinct charm to the border of a pond while all sorts of wild ferns will easily stand transplanting and do well along its margin. The water lilies, however, are the most interesting group of plants for decorating the ponds. Some lilies are hardy, continuing to grow year after year without renewing. Others are of a more tender



A LEAF OF THE VICTORIA REGIA SUSTAINING A LITTLE GIRL.

kind which will not live out of doors all winter in this climate. The *Victoria regia*, though the greatest of water lilies, is not a hardy variety and must be planted in tubs or boxes which are submerged in water artificially heated. In Prospect Park, Brooklyn, one of the lily ponds is devoted to the cultivation of these *Victoria regia*, and a portion of this pond is shown in the accompanying photograph.

A Veteran Hemlock.

BY MILO LEON NORTON, BRISTOL, CONN.

Oliver Wendell Holmes describes a hemlock tree that blew down in a gale



THE VETERAN HEMLOCK.

in Massachusetts, in 1853, that measured twelve and one-half feet in circumference, and was three hundred and fifty years old. I have found its rival standing so near the corners of three towns—Harwinton, Plymouth and Thomaston, Conn.—that I am unable to say to which town it belongs. It is fourteen feet three inches in circumference, and, according to the rule of three, using Holmes's tree as the basis of calculation, it is about four hundred years old. Its

spreading habit, making it undesirable for lumber, saved it from the woodman's ax. It is still in good condition, though two of its branches have fallen, having been broken down by the heavy accumulation of ice about a dozen years ago. Directly beneath the tree is a spring of cold, clear water, a cup of which is held by the writer as shown in the picture. So far as I know, it is the largest tree of its kind in Connecticut.

Earth-Stars.

BY MRS. M. E. McDOUGALL, PLATTSBURGH, NEW YORK.

The Geasters or earth-stars are the most picturesque forms of the puff-balls. They have no economic value, but are interesting to nature students on account of their beauty and curious ways of discharging their spores.



THE EARTH-STARS.

Geaster minimus, the smallest earth-star, is found in grassy grounds. The water-measuring earth-star, *Geaster hygrometricus*, grows in fields, woods and sandy soil, and is found all over the world.

When the weather is wet, the underside of the points of the star become soft and so lie flat to the ground;

when the weather is dry, the points curl up about the inner ball, and the wind rolls it about, scattering the spores from the opening at the top.

Illustrations and particular information are given in "The Mushroom Book" by Nina L. Marshall. She says, "It is a fair-weather traveller, always resting at night and on damp days."



Incorporated, Massachusetts, 1892.

Incorporated, Connecticut, 1910.

BOARD OF TRUSTEES.

Corporators: Edward F. Bigelow, Ph. D., Sound Beach, Conn., President and Treasurer; Hon. Homer S. Cummings, Stamford, Conn., Secretary; Walter D. Daskam, Stamford, Conn. Other Trustees: Harlan H. Ballard, Pittsfield, Mass., Honorary Vice-President; Hiram E. Deats, Flemington, New Jersey, Business Adviser and Auditor; President David Starr Jordan, Stanford University, California, Dean of Council; Dr. Leland O. Howard, Washington, D. C., Naturalist Ad-

viser; Reverend Charles Morris Addison, Stamford, Conn.; George Sherrill, M. D., Stamford, Conn.

From the Charter of Incorporation: "The purposes for which said corporation is formed are the following, to-wit: the promotion of scientific education; the advancement of science; the collection in museums of natural and scientific specimens; the employment of observers and teachers in the different departments of science, and the general diffusion of knowledge.

More Than a Cure—a Preventive.

One of our enthusiastic friends has sent to this office a copy of "The White Peril, or How I Cured Myself of Consumption at Home," by Louis R. Andrews, a young man of Danbury, Connecticut.

This, like all other writings on the subject, preaches the doctrine of The Agassiz Association. "Consumption cures," professedly for curing consumption, have this one defect—they keep the patient constantly thinking of himself.

Not long ago in New York City, my attention was attracted by a large number of people who were hurrying aboard the various cars. I followed them. Upon inquiry of the conductor as to what was the attraction I found that they all were going to the American Museum of Natural History to

see the demonstration pertaining to consumption. Every one was thinking consumption, talking consumption and, one might almost add, spitting consumption. So great is the influence of mind over matter that in such a crowd and in such a place one could easily imagine oneself a consumptive.

But The Agassiz Association has been for thirty-five years taking people to the best of all consumption cures—Nature's Sanitarium, the great out of doors, and it does so more effectively because it has all the time been saying to its crowds of devotees, "Think not of yourself, but of this wonderful and beautiful world. Come out of your stuffy rooms and live in the fields and woods, in tune with them, and as far as possible away from your own ills, misfortunes and worries." It is all that the consumption

cure advocates physically, and gives you in addition the mental stimulus.

Nowadays, we are hearing more and more of the influence of mind over matter and, while many of us will not go so far as some of these extremists, we surely believe that the mind does have a decided influence upon our physical well being. Would you be not only cured of consumption but prevented from having it? Become a member of the AA, and live up to its principles. It says continually, "Think as well as live with trees, clouds, pure air, birds, flowers, picturesque country roads, the delight of the camera, the field glass and the microscope."

Now to go back again to Mr. Andrews and his book. It evidently took him a long time and much expense in doctor's bills to learn the simple lesson that we have been preaching for thirty-five years, but finally he learned it, and he learned it well, and in this interesting book he tells how he made the fight and finally decided to free his mind from worry, to take plenty of food and sleep, to live in the outdoors, and, more than all, to take an interest in the outdoors.

Here is a summary of what he believes to be the best method of fighting consumption:

"Let these examples lead you to think of all your circumstances: Change from a dark, damp, close room to a sunny, dry, airy one; from city to country; from damp to dry climate; from a changeable climate to an equable one; from 'long hours' to long sleep; from active to quiet life; from anxious thought to easy diversions; from irregular ways to regular; from wrong to right clothing; from lazy breathing to deep respiration; from sedentary occupation to wisely-chosen, more active work; from indoor to outdoor."

Following that he has a number of interesting chapters on one's mental condition, and finally arrives at the conclusion that is exactly coincident with the principles of The Agassiz Association, as follows:

"To gain knowledge, study Study

nature in all her innumerable phases and aspects; through the conscience; through the reason; through the microscope; the telescope; chemistry; the arts and sciences; the rocks, minerals and stones; the trees and flowers; the birds, beasts and fishes; the seasons; and, above all, through the synthetic spectacles of our fellow man.

"Teach your mind the value of analysis; synthesis; comparison; perspective; theory and logic—and practice them all.

"Take up some one subject that your nature shows some special predilection for, and make it your hobby. Every man should have a hobby."

Mr. Andrews is right. While he was at Saranac Lake, while he was following the advice of the doctors, while he was all the time introspective, he grew worse and worse and, by and by, he came to this conclusion: "*Study nature in all her innumerable phases and aspects.*" Such study will cure consumption and many other diseases; yes, even mental and moral as well as physical.

Would you, reader, give your dollars and work and give efficiently not only as a cure but as a preventive? Then help forward our work of taking young and old into the greatest and most common sense sanitarium of the world—God's Great Out of Doors.

Nature-Study for Christians.

Under a department headed, "Christians at Play," in "The Christian Endeavor World" for September 29, 1910, is the following paragraph:

NATURE-STUDY AS A PLEASURE.

Nature-study can hardly be called an amusement; it is a pleasure that tends to build up. Most societies could take this up as a part of their regular work, and do it with profit. What does the ordinary Endeavorer know about flowers, trees or the creatures of the woods? A study-class supplemented by walks into the country, would open the door leading to a lifelong joy. One or two Endeavorers can begin it. Of books that are worth while there are legion, and one will lead to another.

This confession of ignorance of nature, and of the total neglect to follow the teachings of Christ by the "ordinary" Christian Endeavorer, is to

say the least astonishing. And yet Christ preached His most impressive sermon, not in a church but on the top of a mountain, where He was surrounded by nature, and where He and His disciples had only to lift their eyes, to see nature as He Himself had made it. He drew lessons from the birds, from agricultural operations, and gave positive command to, "Consider the lilies."

Have the Christian Endeavorers forgotten these:

"Jesus....went.... over the brook Cedron, where was a garden....for Jesus oftentimes resorted thither with his disciples." (John 18: 1, 2.)

"And he said unto them, Come ye yourselves apart into a desert place, and rest a while." (Mark 6: 31.)

"When Jesus heard of it, he departed thence....into a desert place apart." (Matthew 14: 13.)

"And when it was day, he departed and went into a desert place." (Luke 4: 42.)

"And he took them, and went aside privately into a desert place." (Luke 9: 10.)

It is not necessary to tell the Christian Endeavorers that a desert place is not a dreary Sahara of hot sand and burning blasts of wind, but only an uncultivated field where there are nothing but weeds and caterpillars, but the weeds bloom and the caterpillars become butterflies or moths, the blue sky bends above the desert place, the sunlight floods it, the soft breezes float gently across it. The Christian Endeavorers should not forget that Christ loved the desert places, and "oftentimes resorted thither with his disciples." The Christian Endeavorers, as well as all other readers, have only to open their Concordance to discover how full the Bible is of nature. When "the heavens and the earth were finished," about the first thing that God did after he had created man, was to plant a garden.

And yet the official organ of the Christian Endeavorer Society writes as if absolutely nothing in all this line has been done, and urges the members to "begin."

Is there anything more puzzling in

all this world than the indifference to Nature, to the desert places, by those who, one would reasonably suppose, have every reason to be the least indifferent?

Play or Practice of Flying Squirrels.

BY WILBUR F. SMITH, SOUTH NORWALK, CONN.

Across from my home there is a row of old maple trees. Some of the limbs are old and decayed and furnish homes for birds and an occasional squirrel. This year a pair of flying squirrels raised their young in one of the cavities, and on one evening gave a remarkable exhibition of their power of flight to an admiring group in the street.

It would be hard to tell whether the old ones were giving the young a lesson in the use of their "wings" or whether they were out for an evening of fun and frolic. They chased one another up the trees, going round and round till they reached the top, when without a moment's pause they would launch into the air and "sail" to a neighboring tree.

At times all four would follow one after another to the same tree, and then they would fly to different trees.

It seemed as if at least one of them was in the air all of the time. There was a degree of graceful curves in their flight that I had never seen before. Instead of flying from high to the base of the next tree as is usually their custom, they would launch out and with a graceful curve rise and alight at least fifteen feet above the lowest part of their flight. The distance between some of the trees was over one hundred feet.

Never for a moment did they pause and look for food, and the gambol continued till the evening shadows began to fall, when I saw them gather back in the old nest tree.

When I think of the twelve grand banquets which you serve each year, I feel that you must regard many of your subscribers as extremely selfish for not giving something of themselves in return.—G. W. Johnson, Jackson, Ohio.

The La Rue Holmes Nature Lovers League

By George Klinge, Summit, New Jersey

"THE GUIDE TO NATURE" is the official organ of the LaRue Holmes Nature League. It is important, for the general League interest, that the magazine be liberally supported, through the active cooperation of League members—George Klinge.

L. H. Nature League Motto: "Self-sacrifice; heroism for another."

The most recently formed "United School Chapters" are Miss Dana's School, South Street, Morristown; the Westfield High School, Westfield, New Jersey.

Reports of Observations Desired.

The migrations are over. The census of the remaining wealth of your locality in wild flowers has been taken. Will you send to me, at Summit, New Jersey, copies of the records from wherever you may reside, together with the names of the most successful recorders—of those who most earnestly seek to know, by sight and name, the wild things of the woods?

Stop the Devastation of Trees.

If you are truly a nature lover you hear across the winds the ring of the thousands of axes, yet swinging in forests which the nation has tried to save, but which our representatives in Congress have, so far, doomed to destruction.

If you are truly a nature lover you await, a bit breathlessly, the hour when the demands of this nation's intelligent element shall be respected, and the ring of the axe be hushed in the Appalachian and White Mountain forests. But what are you—you individually—intending to do toward hastening the time? Will you give even one hour of your life in helping to deluge the men at the helm with expressions of sentiment in behalf of the preservation of the grandeur of our mountain

forests; of the industries nearing their death throes, through the destruction of the steady power of the mountain water ways; of the interests of the tillers of fertile fields which are now being impoverished through accumulations of debris washed down from deforested mountain sides? Do you use your pen, if you have a right hand, and send your appeals beyond the area reached by your voice? If you are a nature lover the ring of the axes comes to you in echoes. Help to hush them.

Saving the Elm Trees.

Have you or your neighbors elm trees which are dying? If so what are you doing to save such valuable possessions?

I will tell you why the elm tree which I own is green and flourishing at this autumn season. As soon as the insects make their appearance in the early summer, the tree is scrubbed, with strong soap suds for a distance of eight or ten feet up the stem. When dry a coat of thick molasses is given over six feet of the surface of the stem. A cloth or raw cotton, about ten inches wide is wrapped around the tree about six feet from the ground, and a thick coat of tar is spread over the cloth or cotton. The majority of the insects are caught in the tar and any that remain are occasionally brushed down with a wet brush, and fall either into the tar or wood ashes which is thrown about the base of the tree.

An Incomplete Quotation.

Owing to an erroneous omission of a few words, in the quotation from Mr. Kellogg, on page 228 of the September number, it read "show his readers their purchasing power."

It should have read:

"Let the Editor show his readers how to become better workmen with such tools as are within their purchasing power; then, if the readers profit as they ought by the instruction received, they will be in positions to supply the better pictures that are wanted."



'Tis not in mortals to COMMAND success, but we'll do more, Sempronius, we'll DESERVE IT.—*Addison: Cato.*

Doing Rather Than Saying.

Our readers know that this magazine stands for correlation of nature study. We believe that outdoor interests are not so readily correlated with school studies as with muscular activities. A good example of this, published in our October number, was that of boys in a New York City school who were making flying machines. By experimenting with these, the boys learn many things about the atmosphere that they could not learn from books or from words. A good set of tools should be regarded by every school as necessary in the study of nature. By these, may be made not only aeroplanes but many other appliances useful in nature study. Among such are nets, plant boxes, terraria, cabinets for specimens, bird houses and small cages for pets. The boy's outfit of tools may be obtained from Hammacher, Schlemmer & Company, Fourth Avenue and Thirteenth Street, New York City. We are all familiar with this address as it is advertised in this magazine. Send to them for catalogue and full particulars. One of these outfits has been set up in Arcadia and is a valuable part of the equipment. The nature study that we represent is exemplified by the motto, "Do things efficiently rather than say things correctly."

Convenient Ornithological Sheets.

W. W. Grant has designed very convenient ornithological sheets to facilitate the recording of field observations, hoping that they may induce many bird lovers to take to the fields. The blanks and the outlines of birds are so arranged that observations may be quickly recorded in the field, and later compared with any of the standard text-books, or with other works of reference.

Prospering Opticians.

All students and lovers of nature who are interested in the portrayal of their favorite subjects before large audiences and, of course, interested in all methods of doing it, will congratulate the cause, and the Chas. Beseler Company of New York City, upon the increased demand for stereopticons and lantern slides that has made their business grow so rapidly that they have moved uptown to 110 East Twenty-third Street. Here this enterprising concern is displaying a very large supply of all forms of projection apparatus and lantern slides, making it a very attractive place for all interested in optics. The Schwan light is meeting with marvelous success, as it should, because it is brilliant, steady and inexpensive. In some respects this light is better for indoor work with the camera and photographing small objects than is any other form of illuminant.

Am delighted with the magazine and the work you are doing.—*Miss Fannie E. Blakely, Brooklyn, New York.*

THE GUIDE TO NATURE is deserving of financial success.—*L. L. Duerden, Port Washington, Long Island, New York.*

It seems to me that THE GUIDE TO NATURE is on the road of very steady improvement, and I congratulate you upon it.—*Dr. R. W. Shufeldt, Washington, D. C.*

I like THE GUIDE TO NATURE very much. You have my hearty co-operation in teaching the people how to entertain themselves, something so many seem devoid of.—*J. G. Crawford, Albany, Oregon.*



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with Uncommon Interest

EDWARD F. BIGELOW, Managing Editor

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The Stone Bungalow with Stone Interior.

The use of stone in construction of bungalows and other houses is quite common for exterior finish but to have the interior finished in rough stone is quite a novelty. Such a bungalow is that of Mr. William J. Smith in the northern part of Greenwich. Both the exterior and the interior are of rustic, picturesque construction of rough stone. The sideboard, for example, in the dining room is laid in rough stone, giving a very pretty effect, even if it does suggest danger to the dainty china dishes and glassware thereupon. But with a little care, of course, the dishes may be placed safely upon stone, but we should think the greatest problem to Mr. Smith would have been not in the architectural construction but the household assistance conservation. Then in addition to the general rustic

appearance there is a remarkable construction in the way of an unusually long stone over the fireplace. One wonders where Mr. Smith could have obtained such a remarkable stone.

The name of the place is "Willow Farm," and it was formerly owned by Congressman William J. Ryan. He and his father some fifty years ago set out the willow trees that now so gracefully adorn the property. The stone for the bungalow was obtained on the premises.

Mr. Smith has built several of the beautiful homes in Belle Haven in which decoration by rustic stone has been a predominating feature. And this led him to construct a bungalow that would carry such construction more into display, and the result has been pleasing to him and to his many friends. The house was constructed about two years ago, entirely by day work, and the cost was about \$40,000.



MR. WILLIAM J. SMITH'S HOME IN RUSTIC STONE STRUCTURE.



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little shore on the shore at Sound
Beach. It was a delightful
place to have worked in it
when it was surrounded by
the spray and under-run by
the tide and filled by the sounds
of the sea. Then its ~~corner~~ ^{corner} fire
side was a place to be loved
and remembered - something half
way between a ship and a house.
It was wonderful too of a
summer night when the waves
were lapping beneath and
around it and the salt breath
of the sea was flowing in at
the door and windows. In all
my travels I have seen nothing like
it - nothing quite so delightful and
never expect to again. The natives
mattered at the first high tide
to see it washed away. But
modern construction was a
thing then I knew not of and
now it stands ^{today} and certain-
ly the natives are still wondering

I wrote a part ~~a part~~
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The dainty yet rugged little retreat has been much admired and given rise to many queries by thousands who have passed the Point in boats or visited it by land. We are glad to publish this photographic souvenir and the following letter from Mr. Bacheller: Dear Mr. Bigelow:

If I remember rightly it was in 1903 that I built this little study on the shore at Sound Beach. It was a delightful place. I have worked in it when it was over-washed by the spray and under-run by the tide and filled by the sounds of the sea. Then its cosy fire-side was a place to be loved and remembered—something half way between a ship and a house. It was wonderful too of a summer night when the waves were leaping beneath

and around it and the salt breath of the sea was flowing in at the door and windows. In all my travels I have seen nothing like it—nothing quite so delightful and never expect to again. The natives gathered at the first high tide to see it washed away. But modern construction was a thing they knew not of and here it stands to-day and certain of the natives are still wondering.

I wrote a part of "Darrel of the Blessed Isles," "Vergilius," and the most of "Silas Strong" under its roof.

Yours sincerely,
IRVING BACHELLER.

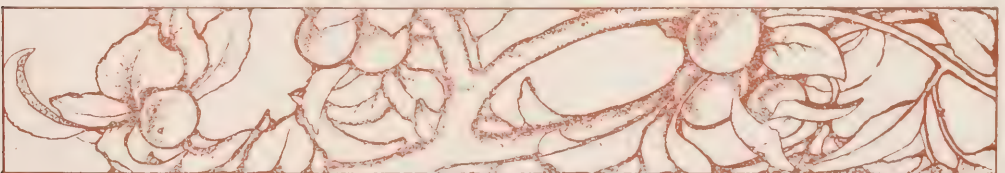
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MR. ARTHUR W. DAVENPORT'S SLOOP ON LONG ISLAND SOUND.

Good Photograph of Sailboat.

This photographic gem is so nearly perfect that it would be difficult to suggest any improvement. The boat pictured belongs to Mr. A. W. Davenport, and is named "Dry Moon."

She is an auxiliary sloop twenty-five feet in length, nine and one-half feet beam, with a draft of three and one-half feet and is fully equipped for either a short or a long cruise. Mr. Davenport uses her a great deal for both purposes, but especially for short sails by moonlight. She is equipped with a five horsepower Palmer engine. The photograph was taken by John A. Marshall.

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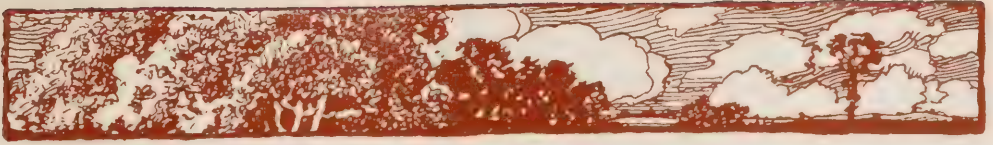
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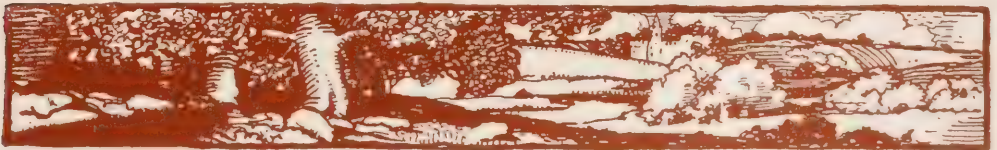


A Merry Christmas
to You All

From Our Arcadia and All It Represents



ArcAdiA—AA, AA and AA—the beginning and the end, the beginning and the middle, the middle and the end—first and last and always permeated with The Agassiz Association, the spirit of Louis Agassiz is our ArcAdiA—but pre-eminently does it radiate deified nature at this annual celebration of the birth of Christ, the Naturalist.



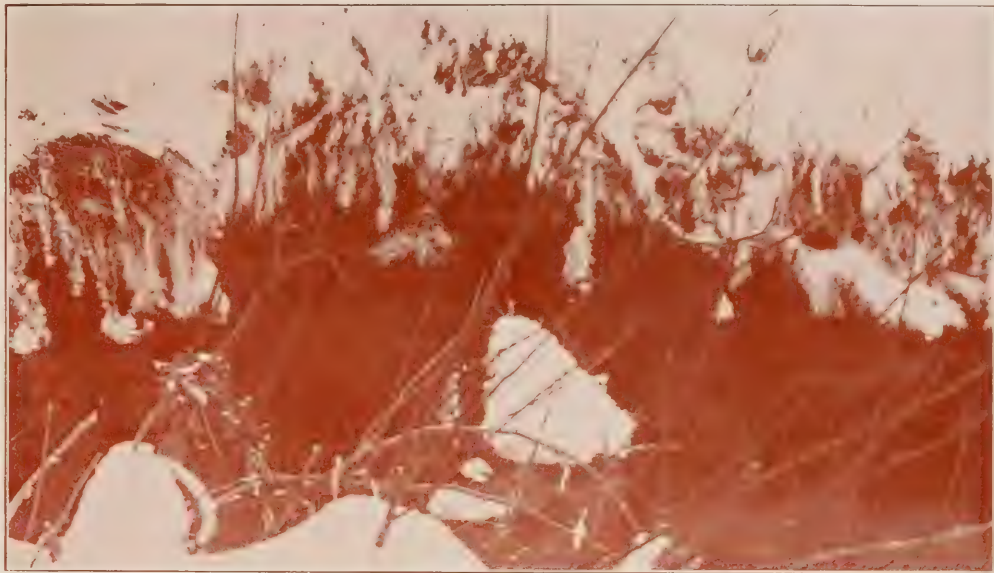


A CHRISTMAS TREE "CELEBRATING" THE LONG AGO.

The ruins of the cellar walls may be seen dimly at the right, beyond the old apple tree.

The big pine tree at Long Ridge, Stamford, Connecticut, is one of the sights and landmarks of the vicinity. Some sixty or seventy years ago there stood under its wide-flung arms a dwelling house—decayed and fallen this half-century—where lived a woman named Phoebe Ayres, who has given her name to this section. This backwoods district is known as the "Phoebe" country. I feel perfectly safe in saying there is no pine tree for fifty miles around that can compare at all with it for size or grotesque beauty.—

Walter P. Terry.



A TAPESTRY OF THE CHRISTMAS SNOWFALL.
Snow and frost on grasses overhanging the brook.



HOW THE FARMER SINGS THE PRELUDE TO WINTER.
(Ebenezer Hobbie, Banksville, New York.)

I knew a crazy man who walked into an empty pulpit one Sunday, and taking up a hymn book, remarked, "We have had a good fall for getting in corn and potatoes, let us sing Winter." So I say, "Let us sing winter." What else can we sing, and our voices be in harmony with the season.—*Henry David Thoreau.*

NUTS They are to be gathered in October, dried in November and eaten in December. A Christmas without nuts would be like a Fourth of July without firecrackers.



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The Romance of Seven Nuts

By A. C. POMEROY, Lockport, N. Y.



PEOPLE who have traveled in England come home with stories of the splendid old trees that spread their sheltering branches far over many a grassy park or village street. And among the stately trees of the old country the English walnut holds a prominent place. Its symmetrical shape, its dark dense foliage, smooth light grey, or ash colored bark, making it very desirable for an ornamental or lawn tree.

Old and gnarled and rugged at the bole and often the children of many generations have climbed it, built play-houses in its branches in summer, and clubbed it in autumn when the clustering nuts have tempted the

young rangers. They say in England that the more you club the walnut in the fall the bigger crop of nuts will it yield next year.

"A wife, a dog, and a walnut tree,
The more you club 'em the better they be!"

The reason for this lies in the fact that the nuts grow only on the new wood and every branch that has its nut-laden ends knocked off in the fall will put forth a couple or more of new pieces of wood the next spring, and each of these will bear its clusters of nuts equal in number to those on the original one.

English walnuts have been grown in this country. The California English walnut is well known. Until recent years the Northern and New England states were supposed to be too cold

for the cultivation of these delicious nuts. The farther north a nut is matured the better the flavor is—even as the case with apples or other fruits.

At Lockport, Niagara County, New York, there is a hardy variety called the "Pomeroy" being successfully cultivated. The story of the seven nuts is as follows: My father in 1876 visited the Centennial Exposition at

Philadelphia. He took a room and prepared to stay some time and see all that was to be seen. When he awoke the first morning in his new surroundings he noticed a great dark-leaved tree, tapping its branches against his window.

Being used to trees, he looked at this one, and got up and looked again for it was a kind different from any he



HE WAS PREPARING FOR CHRISTMAS.



A BEARING SIX YEAR OLD TREE.



A TRIM AND TASTY TREE.



OF PROLIFIC AND PROFITABLE GROWTH.

had ever seen. Putting his head out of the window he was still further interested to see the ground strewn with nuts, for it was fall. And with no thought of sin in his heart, he proceeded to investigate still farther.

He made his way out doors and poked around among the nuts that lay on the ground. The story does not record whether his host invited him to try the nuts or not. Probably he did. At any rate my father was much smitten with the quality and flavor of this new nut and the appearance and dignity of the tree which bore them.

A neighbor was returning to Lockport before my father, so he gathered a few quarts of the nuts, put them in a handbag and got the neighbor to take them along and deliver them to the Pomeroy family.

Well, to make a long story short, the handbag had a hole in one corner, the neighbor had many children, the children found the hole, found the nuts—there was but one possible finish to the story.



THE LATE NORMAN POMEROY.

When the proud possessor of the nuts came like a miser to open his store, the treasury was rifled. At first

it seemed that sorest disappointment was to be his lot, but he lifted the bag and it rattled. Yes, under a torn bit of lining there lurked some nuts—just seven. With eager haste he made sure of them. From these seven nuts he propagated seven trees. In a few years the trees began to bear. He then produced more trees from the nuts. He found that he had a variety that would pass through a winter so cold that grape vines and peach trees growing but a few feet away would frequently be frozen to the ground.

The seven original trees stand near the old Pomeroy homestead, now strong and hearty and yielding nuts every year. Thirty-three years have passed over them and every year adds to their value and beauty.

From these seven nuts many hundreds of trees have been propagated, new orchards or groves have been planted, and English walnut culture bids fair to feature Niagara County, New York.

The writer while in Philadelphia a few years past, visited the place where his father gathered the nuts, but the old parent tree is no more. A towering office building now stands where



"I AM GETTING THEM READY FOR YOU."



ALL READY FOR THE MARKET.

in 1876, homes, with their lawns, gardens and shade trees flourished. Thus you have the story of what one man did with seven nuts.



THE POMEROY HOMESTEAD.



A Snake in the Peak of a Barn Roof.

BY WILBUR F. SMITH, SOUTH NORWALK,
CONNECTICUT.

One morning in June I was with a friend in one of those picturesque old barns which dot the farm country. We were moving a hay-baling machine so that the loaded wagons could drive on to the floor and store the sweet smelling hay in the capacious "bays."

A pair of barn swallows had a nest in the peak of the roof, and I watched the old birds winnowing the sky for

my friend found in an apple tree just outside of the barn a similar snake trying to get the young from a chipping sparrow's nest. Any one who has had any experience with these snakes knows how well they can climb, and that young birds and birds' eggs are often a part of their bill of fare.

(From a later letter.)

P. S. Two days later my friend heard a commotion in the barn and found the snake (from all appearances the same one) at the swallow's nest.



A SNAKE'S SKIN ON THE RAFTERS OF A BARN.

food and ever and anon darting in at the open door to feed their young.

While thus occupied I saw a snake's head over the edge of one of the big beams, and then a part of the body, which quickly disappeared under a board that had been nailed to the beam to cover a decayed spot.

Climbing to the beam, which was not easy as the beam was sixteen feet from the floor, I pried off the board, when the snake ran out, dropped to the floor, and escaped without any apparent injury.

In a cavity under the board was a mouse nest though no mice, and I am wondering if the snake, which is known as the white-throat racer, and was between three and four feet in length, was after the young birds or was looking for mice. It was after the birds I am inclined to believe, because

He shot it with a rifle and, when it fell to the floor, he found that it had a young bird in its mouth. The snake skin is twisted around the rafters at the present time.

The swallow's nest is twenty-five feet from the barn floor.

The Butterfly Trees.

BY LUCIA SHEPARDSON, PACIFIC GROVE,
CAL.

The accompanying photograph illustrates a peculiar phenomenon of nature which may be observed every year at Pacific Grove, California. In the pine forests surrounding the town there is a certain group of tall trees which is the winter home of the big brown butterfly called the Monarch, or *Anosia plexippus*. These butterflies do not hibernate, but migrate annually from



MONARCH BUTTERFLIES IN THEIR WINTER HOME.

colder regions to warmer; they are polygoneutic, several broods being produced annually. This particular spot at Pacific Grove is one of their winter colonies. What strange instinct leads them to this same place year after year no one knows; they never choose any other trees than this especial group. Each October they appear as regularly as the seasons change; they remain until the middle of March.

They cling to the boughs in great clusters and bunches, myriads upon myriads of them, and when their wings are folded they look like brown leaves; when they are disturbed in any way they rise in flight in fluttering clouds, one of the most beautiful and curious sights to be found in all the world. During the day numbers of them flit about the gardens of the nearby towns, but at evening they always return to their chosen trees, like homing birds.

The photograph was taken by Mr. A. C. Warner of Pacific Grove.

The mourning cloak butterfly may be seen in the New England woods in winter.

In Common Things.

BY MINOT J. SAVAGE.

Seek not afar for beauty, Lo! it glows
In dew-wet grasses all about thy feet;
In birds, in sunshine, childish faces sweet;
In star and mountain summits topped with
snows.

Go not abroad for happiness. For, see!
It is a flower that blossoms by the door;
Bring love and justice home; and then no
more
Thou'lt wonder in what dwelling joy may be.

Dream not of noble service elsewhere wrought,
The simple duty that awaits thy hand
Is God's voice uttering a divine command;
Life's common deeds built all that saints have
thought.

In wonder-workings, or some bush aflame
Men look for God, and fancy Him con-
cealed;
But in earth's common things He stands re-
vealed
While grass and flowers spell out his name.

The paradise men seek, the city bright,
That gleams beyond the stars for longing
eyes
Is only human goodness in the skies.
Earth's deeds, well done, glow into heavenly
light.—"Our Dumb Animals."



Evening Sky Map for December.

BY PROF. ALFRED MITCHELL, OF COLUMBIA UNIVERSITY.

On one of the cool crisp evenings that come at this season of the year, we see the heavens sparkling with countless gems of light, apparently millions in number. Indeed, most people believe that it would be absolutely impossible to count all the stars that can be seen with the naked eye; and throughout all ages of the world's literature, the terms "numberless as the sands of the sea shore," and "countless as the stars," have been regarded as synonymous. But to be "like the stars in number," would not necessitate a very great number, if one refers in that, to the stars that may be seen with the naked eye. As a matter of fact, we could not count these stars up into the millions, nor even to hundreds of thousands, nor yet to tens of thousands. At any one time only three thousand stars can be seen without a telescope by any observer, and in the whole heavens there are less than six thousand stars that may be seen with the naked eye.

Even with a small telescope, the light gathered to fall on the retina of the eye is many times that which falls on the unaided eye, and as a consequence many more stars are revealed. With greater and greater telescopes, there are brought to our ken, fainter and fainter stars. Strange as it may seem, a moderate-sized photographic telescope with the modern sensitive plate can portray stars and nebulae which are too faint to be seen by the keen eye of the astronomer using even the great forty-inch Yerkes telescope. It has been estimated that the photographic plate has revealed no less than one hundred million stars. Each of these stars shines by its own light and

is, consequently a sun. How would our own sun compare in size and brilliancy with one of these distant orbs of light? Do some of these suns have planets circling about them? Do any of these planets (if there are such) resemble our own earth? Are they inhabited? These are interesting questions that we can partially answer.

The Darwinian theory of evolution explains the gradual development of life on this mundane sphere of ours. In the heavens, we see abundant evidences of evolution, changes going on with majestic slowness, through eons of time. In the evolution of these hundreds of millions of other suns, it does not seem impossible for some to have developed like our own sun, nor does it seem unthinkable for some of the planets belonging to these solar systems even to be inhabited. Different environment would have made men on these planets different from the average American, but none the less they may be human beings. It seems hardly likely that the vast universe was made solely for our pleasure, with stars and other systems serving no other useful purpose than being mere points of light in the sky.

To compare the brilliancy of our own sun with others, we must know the relative distances and their relative brightness. The brightest fixed star in the heavens is the brilliant dog star Sirius, which is found low down to the southeast in the early evening. The astronomer keeps track of the brightness of the stars by their "magnitudes." The brightest of them are of the first magnitude, those just visible to the naked eye of the sixth magnitude. The twenty most brilliant stars known to the ancients were regarded as of the first magnitude stars. As science became more exact it be-

But even at this enormous distance, the sun would be only about one-sixth as far away as Sirius exactly lies. In other words, Sirius shines with a lustre fully thirty times that of our sun.

And Sirius is not a solitary example. The sun looks big and bright only because it is so close, but if it could be put off from us to the average distance of the fixed stars, it would shine with a luminosity just visible to the naked eye, it would be a star of about the sixth magnitude. There are vast numbers of other suns more brilliant and more massive than our own sun.

NEW STARS.

Another new star has been found at the Harvard College Observatory, the third of these bodies in a period of six weeks. When a star suddenly blazes out and increases its brightness in a remarkable manner in a short period of time, it is called a "new" star or "Nova." The brightness usually lasts but a short time, and the star again sinks to its former state of comparative obscurity. During the past twenty-five years only seventeen new stars have been found altogether, of which number no less than fourteen have been found at Harvard. The last addition was found by Miss A. J. Cannon, but the interesting part of its life history—the period of maximum brightness—was seen many years ago. The discovery was made in November, 1910, from a study of photographs made on August 10, 1899. The star appeared in the constellation Sagittarius from that date until October, 1901. The star cannot be found in the constellation now. It is very curious that three such unusual discoveries should be crowded into six weeks.

A comet has been discovered with the great 36-inch telescope of the Lick Observatory. This is a return of Brook's Periodic Comet, 1889 V, which re-visits the earth every seven years. The comet was found within thirty seconds of arc of its predicted

place (one-sixtieth part of the diameter of the moon), but it is unfavorably situated and cannot be seen in small telescopes.

Some years ago Professor Charles Lane Poor of Columbia University showed that this comet in March, 1883, came very close to the great planet Jupiter. Before this date the comet had a period about the sun of more than a hundred years, but the attraction exerted by Jupiter was so strong that the comet was pulled out of its former orbit, was "captured" and made a permanent member of "Jupiter's family." The comet was observed in 1889, 1896, 1903, and now in 1910. This comet has afforded a splendid example of the manner in which comets are brought into the solar system, and the interest attaching to it is great on that account.

THE PLANETS.

Mercury may be seen in the southwest about Christmas day setting an hour after sunset. Venus is still too near the sun to be visible.

Mars is a moving star rising an hour and a half before the sun, but it is faint and uninteresting.

Jupiter rises two or three hours before sunrise and during the winter will become more and more prominent.

Saturn is still a magnificent object for a small telescope. It rises about sunset and can be readily found by any one, the brightest body last of the meridian. The possessors of telescopes will have continued pleasure in examining it closely. Additional interest is attached to it, now due to the presence of a polar cap discovered at the Lick Observatory.

The sun is at the winter solstice on December 22 at 10.12 a. m. This is the "shortest day in the year," the day of least sunlight. By consulting any ordinary almanac it will be seen that the sun does not rise the latest nor set the earliest for the year on this date. What is the reason?





A Chapter of the Agassiz Association. (Incorporated 1892 and 1910.) The Law of Love, Not the Love of Law.

A Village of Muskrats.

BY PAUL LOCKWOOD, LONG RIDGE,
STAMFORD, CONNECTICUT.

Four autumns ago, while hunting in a patch of woods about three miles north of Stamford, I ran across a village of muskrats nestled in a swamp in a cosy ravine. At first I did not recognize the queer, conical shaped dwellings that dotted the swamp, and when I did it was with the impression that they were nothing but heaps of driftwood and grass that had been piled by the heavy spring rains that had probably flooded the land. There was one house, however, near the center of the swamp that stood aloof from the others, and it was through this dwelling that the discovery was made.

This particular building was made chiefly of calamus roots and tufts of swamp grass neatly plastered together with mud. It differed from the other huts in that it was not erected with sticks, and was not built in a clump of young willows as were the others. I afterwards found that it contained a colony of young outcasts, who upon reaching their maturity had probably been told by their older and experienced parents to get out and root for themselves. That they lacked experience was evident from the manner in which they had built their home, as it practically had no foundation, and was on the very edge of the channel of the stream that supplied the swamp, and was exposed to the force of the heavy spring rains.

Not desiring to create the impression that this is a Munchausen nature story,

it will probably be advisable to give the reasons for reaching such a conclusion. In the first place the house was not securely erected as already stated, and looked like the work of amateurs in comparison with the other houses. Further, a trapper informed me that he secured nothing but young rats when trapping near the base, while from the other houses he secured many old ones, and a few young ones were taken. That some of the young ones were allowed to remain in the old dwellings with their parents gave the impression that those who occupied the new houses were in all probability "undesirables" and had been cast off after the fashion of the bee.

It was near dusk when I found the village of little workers, and the ice god had already started to demonstrate his power, and what was to happen before many weeks went by. Except where the warm water from a nearby spring threaded its way into the heart of the little settlement, the entire pond was encircled in a sheet of shimmering ice.

Some boys from the city had already started to trap the inhabitants, and with few exceptions all the runways contained steel traps. In many instances the inexperienced trappers had erected miniature stockades of small twigs, and at the entrance had placed a steel trap. These were baited with apples. It was a "come on" game practiced of old by the spider to lure the fly, but in this case, as I afterwards found out, the shrewd little fur-bearers were somewhat foxier than the pro-

verbial fly, and were not to be deceived by such alluring inducements.

All the autumn I watched the little settlement, and each day there was new evidence that the night had been



MR. LOCKWOOD STUDYING A MUSKRAT HOUSE.

a busy one, and that little time had been wasted in putting the homes in shape and gathering the food supply for the winter. It was during this busy stage that the trappers managed to wade out to the house photographed by Dr. Bigelow, and set several traps at the base where the dwellers had to travel in reaching the tops of their homes. Each morning there was a rat in the trap, but the third morning I noticed that in place of the trap there was a mound of dirt. Investigating, it was discovered that during the night the colony had got together and completely buried the trap, and had put the finishing touches on the top of their home.

However, it was not until the long days of February that the real damage was done. The ice had already frozen the little pond over solid, enabling the trappers to reach the houses. All were torn apart and the little fellows were robbed of both shelter and homes.

Despite this hardship the trappers did not succeed in exterminating them, and when the first signs of spring appeared in the lowlands, and the little streams were swollen by the heavy March rains, a few gaunt, lean members from the thrifty homes crept from their dwellings and again started the fight for an existence. They were on the verge of starvation and a few fell an easy victim to the tempting lure of the apple on some cunningly baited trap.

The following fall they were again in thriving shape, and many of the houses had been rebuilt, but again the trappers were on the scene and during the winter tore down their houses. Many of the rats they caught that fall and winter had but three legs; the fourth having been left in the steel jaws of a trap, and the stub mark of the fourth was often seen in the soft mud.

John Burroughs has stated that the muskrat will always gnaw his leg off to get out of a steel trap. From my observations and that of old trappers who have caught thousands of muskrats, he is mistaken. The smallest steel trap made (No. o) will break the pipe-like stem of a muskrat's leg, and then by a series of evolutions he twists the skin and flesh apart, gaining his freedom. I have seen a rat twist his leg out in this manner in less than a minute by a series of revolutions about the trap.

A man who has trapped in the Maine woods told me he saw the same thing accomplished. Other trappers have told me that they never have seen a rat or signs where a rat has gnawed his leg out, but always found the tell-tale twisted ligaments and skin.

It was the third autumn when I again visited the scene, and long after I thought the last inhabitant of the little village had been caught. To my surprise, I saw the old familiar tracks that had been watched so closely, and surely enough three of the houses were being built up again. It was plain that they had survived, and that it took more to discourage them than I ever dreamed of.



PLANTS MADE INTO FIBROUS FORM (LIKE OAKUM) FOR NESTS BY THE MUSKRATS.

That year there was a repetition of what had occurred the preceding autumns, and to add to their troubles a family of mink settled in the village. Of the family I succeeded in trapping five, the female, and three of her young. The male member of the family, I am positive was the one whose photograph appeared in *THE GUIDE TO NATURE* last spring, and who was a record-breaker as to size.

For three years I watched their valiant fight for an existence against overwhelming odds, but the end is in sight, and this little village of wonderful workers will soon be but a memory of the wonders of the out-of-doors. That they have so long staved off total annihilation is due but to a few simple factors—to provide for the future, industry and perseverance.

The Crow.

BY FRANK C. PELLETT, ATLANTIC, IOWA.

Desiring to know the truth, I have made a specialty of observing carefully those species which are persecuted by common consent, and have met with some surprises in studying them. I am willing to risk the loss of poultry, or eggs, on my small farm, in order

to know the real habits of predaceous birds and mammals, and so make every inducement to attract them to my vicinity. At present a pair of hawks have their nest in our front yard; wild hawks, by the way, which came of their own free will and were not reared in captivity. In the past, at different times, owls, crows, skunks and weasels have been about the place. We make no effort to protect our fruit from birds, or nuts from squirrels. All this that we may learn to know intimately our backdoor neighbors. There are many things that I would like to write about the various birds and animals whose acquaintance I have formed, but will endeavor to confine myself to the crow, in order to comply with the editor's injunction to "Hit something."

For a number of years the crow has been of special interest to me. In the wooded regions they are in disrepute because of their habit of pulling up sprouting grain. Some also accuse them of injury to melons, and a scarecrow of some sort is a common sight. Here in Iowa he is maligned as an egg sucker, and accused of catching young poultry. The grain fields are

so extensive that the small amount of grain that he pulls up is not missed and consequently not charged to his account.

That the crow is sometimes guilty of all the charges in the above indictment is no doubt true. That is, crows have at some time been known to commit all the depredations above mentioned. That egg-eating is universally practised among crows I very much doubt; that the killing of young poultry by these birds is not even general is very apparent to me, after observing them carefully for a number of years. In cases where young chickens are being taken by crows, the destruction of the crow in the act usually ends the trouble, although there are still plenty of crows about. It has not, seemingly, dawned upon the public that birds and animals have individual traits of character as well as men. There is a very striking difference in the habits of different crows. We have had two tame crows at one time that were as different in their ways as two children. The ordinary person hears of a crow's catching young fowls, or eating eggs, and makes the mistake of judging that accordingly all crows must be guilty of the same offense. The study of individual peculiarities in animals offers a very promising and interesting field of research and observation as yet unexplored.

The crow displays intelligence of a high order, and it is remarkable, in

view of the general persecution, that they are not apparently diminishing in numbers. That crows have a rather elaborate number of notes, by means of which they communicate with each other will not be doubted by any naturalist who has given the matter any thought. I feel sure that with sufficient care one can come to know what they mean by different calls. One day, in the early spring, a good many crows were passing over, all bound in the same direction. They did not come in a large flock, all at once, but kept scattering along for some time. A sentinel posted in the top of a tall tree called "caw-caw, caw-caw, caw-caw, caw," to each bunch that passed. The note was not varied. After watching them for some time and wondering what was meant by these syllables, by which the birds were apparently directed to some point in the distance, I decided to take a hand in the matter myself. So when the next crow came along I gave three short quick notes, in imitation of a crow call, "caw, caw, caw." Although the bird had passed on for some distance, he at once turned and came back to see what was up. Circling about for a minute or two, and seeing nothing, he again started in the same direction. Again I called and again he came back as before. The third time he responded to my call and after wheeling about above my head passed on. The fourth time he came back and flew directly to a nearby



CROW STUDIES BY MR. PELLETT.



PET CROWS AT ARCADIA.

tree and called "caaw, caw, caw," rather slowly. Upon my answering, he at once saw the deception and flew away as fast as his wings would carry him, paying no further attention to my calls. The experiment was repeated with passing birds a number of times during the morning with similar results. I have noticed that crows respond very quickly to certain notes. One morning not long since, a pair of horned owls were discovered by the crows near their nest. Upon the alarm being given, it was surprising to see the crows coming. Where so many came from was a mystery to me. Within a few minutes there were nineteen tormenting one poor owl and others were flying about.

It seems to me that there is little of scientific value to be placed on observations of wild creatures in captivity. They adapt themselves to the changed conditions to such an extent that little is to be learned of their real nature under such conditions. Many persons, however, are so situated that they can make observations in no other way,

so of course should not be discouraged from using the means at hand. The tame crow that we have, although never confined, conducts himself quite differently from the wild birds. He seldom uses any other note than his call for food, and he pays not the slightest attention to the wild crows that sometimes come about. Although he flies about as freely as he desires, he has no understanding of the call of his wild brothers.

It is unfortunate that the crow is denied the protection given by law to most other birds. In the main he is unquestionably beneficial and only in rare instances is his destruction justified. I think that I have studied this bird from an unprejudiced view point; I have had crows catch my young chickens and eat my turkey eggs. The view point sometimes changes when it is one's own chickens instead of the other fellow's. To a dispassionate observer, making an unprejudiced observation it soon becomes apparent that the good accomplished by the species in eating white grubs and other insects,

field mice, etc., far overbalances the injury done by mischievous individuals. While it sometimes becomes necessary to put an end to the pranks of an individual mischief maker, it is surely a mistake to allow the persecution of the race as a whole.

Water for Rabbits and Cavies.

Zoological Park, New York City.
To the Editor:

We feed rats on carrots, apples, lettuce, cabbage, and all kinds of grain. Carrots, to a greater extent than the other things mentioned, supply the moisture which they need, and are particularly good for them. There is no harm in giving water to your rats, although we have proved pretty conclusively by our experience here that it is not necessary. You should not give any water to your rabbits and cavies. We consider it absolutely injurious. Feed them practically the same as you feed the rats, except that you should give them a greater quantity of vegetables—especially carrots. I think you will find that your Japanese rats will relish carrots.

Yours very truly,

H. R. MITCHELL,
Chief Clerk.
Dalton, Mass.

To the Editor:

My thirty years' experience as a fancier and breeder of fancy pet stock has taught me that water given to four-footed pets is not absolutely injurious, provided good judgment is used.

I find if I do not give water to my rabbits, rats and mice, that they will consume more than double the quantity of succulent roots of any kind with the exception of carrots. Other succulent roots, such as turnips and parsnips, are far more injurious than water itself. I always keep good, fresh cloverhay in my hutches, and put a handful of oats there every day. Water given with hay is a good regulator. Of course, if you want to keep rabbits, rats and mice without water, they will live on roots, vegetables and some fruits, but they are more liable to disease if treated in that manner. I have always found that a rabbit, if given the opportunity, knows fairly well how to feed itself, for, under such conditions, it knows when it has had enough. It is not wise to give an excess of water after withholding it for considerable length of time. I have never had a rabbit made sick by giving it water.

Cavies will get along much better if fed principally on roots, vegetables and good, sweet hay without any water.

Yours very truly,

ROBERT WHITAKER.



CAT AND SQUIRRELS.

From G. M. Foster, Glasgow, Kentucky.
Cut by courtesy of "The Cat Journal."



Are You a Christian or a Paulist?

Christ was a naturalist—preeminently a lover and student of out of doors, especially of the wild. He taught from the commonplace things of nature with uncommon interest as they came to hand. He brought a message of peace on earth, good will to men, of the simple life, of heart and of love. He gave us the spirit of things.

* * * *

Paul was a philosopher. He delved in the intricacies of theology. An indoors man, he revelled in synagogues, houses, books and formalism. He established churches and laid stress on the form of things. He rejoiced in the machinery of men's affairs.

* * * *

Each left the imprint of his personality and of his methods of thought that has lasted through all the centuries.

Christ was born in a stable among homely farm scenes. The first notification of His presence was by a star. John, a man of the wilderness, proclaimed Him. In the wilderness He overcame temptation. His intimate friends were fishermen. He called people from the cities—"multitudes of people from Galilee, and from Decapolis, and from Jerusalem, and from Judea, and from beyond Jordan." He preached His first sermon on a mountain. He told us all to "Consider the lilies."

He drew His lessons from foxes, birds and fishes; from the making of wine, the harvests and the laborers; from doves and sparrows; from a cup of cold water, a reed shaken in the wind, a yoke of oxen; from the cornfields, the fruit trees and the sheep; from the sower of seeds, the tares in wheat; from bread making; from a picnic of several thousand people in an open field; from the sea and its pearls; from the clouds of heaven; from the camel as it slowly journeyed; from earthquakes, thorns and grapes; from the bubbling pool of water, and the storm at sea.

His first proclamation of Himself as the Messiah was to a woman drawing water from a country well. His most heart-touching lesson was from the experience of a repentant boy who fed pigs. His intensest prayer was made when He was alone in a garden.

We first learn of Paul as he was "entering into every house, and haling men and women committed them to prison." The first thing that he did after his conversion was to preach Christ in the synagogues. He confirmed the disciples, established dogma, rules, regulations; he quibbled and contended on technical points, "had no small dissension and disputation with them"; he appealed to others on questions—"go up to Jerusalem unto the apostles and elders about this question." It was Paul, the man of in-

doors, introspection, rules, who got into angry arguments—"the contention was so sharp between them that they departed asunder one from the other." It was he who organized the churches; "he went through Syria and Cilicia, confirming the churches." He was the theologian, the fighter, the stickler for details; he put on "the whole armour of God"; he organized, discussed, theorized, got wound up in himself, preached, traveled, hustled, worked hard, was faithful, fought, argued, opposed the authorities, himself became an authority; he formulated, analyzed and classified, but never mentioned God as visible in His works.

If Christ had organized a church, He would have done it in the spirit of David; "The works of the Lord are great, sought out of all them that have pleasure therein"; "the firmament sheweth His handywork."

Every true Christian is a naturalist, a lover of outdoors, an appreciator of the world's true and beautiful things, and of their Creator.

Every Paulist is dogmatic, fond of discussion, a stickler for creed; he is earnest, faithful, devoted, but he has no time nor thought to "consider the lilies" nor for "the birds of the air."

Are you a Christian or a Paulist?

More Flaying of Birch Trees.

An expert photographer and, as I judge from the picture submitted, a lover of nature, sends a well-taken photograph of a beautiful young lady in the act of peeling the bark from a birch tree, and of cutting her initials on the trunk. He writes as follows:

"The photograph of the young lady carving the tree will make a beautiful front cover picture in colors, as I have made some in water colors for my own special use and they are fine when colored."

We have replied to him as follows:

"The lady of whom you send the photograph is, indeed, beautiful; in fact, I have no words in my vocabulary adequate to praise her beauty nor your skill in taking her photograph.

"On the other hand, I have no words emphatic enough to denounce such

vandalism as there shown, nor to express my surprise that you, a lover of nature, should call such things beautiful. I am sending you a marked copy of *THE GUIDE TO NATURE*, in which you will see that I very strongly denounce Wallace Nutting's colored photographs of "skinned" white birch trees displayed in a local show window.

"Talk about using that on the front cover in colors! If you will pose two young scamps in the act of mutilating that tree with their jackknives, and then place a horsewhip in the hands of your beautiful young lady, and let her thrash them with all her strength, such a picture would be something like and really worth putting on the front cover of a magazine devoted to nature."

He Can't "Break Away."

I met him in the street—a Stamford business man, hurrying along toward his office. He extended his hand cordially and said, "I am conscience stricken, I really meant to, but I can't."

I asked what he meant. He replied, "I would like to put into practice your doctrine, but I can't; I can't break away. Don't you remember that the ladies of my family and I visited Arcadia several Sundays ago? While there we unanimously decided that such interest in nature as we saw represented there should be used by every business man and by every woman overtaxed by the cares of daily life. We saw that you really lived and inculcated the true Arcadian doctrine of interest in commonplace things and the nearness to nature and —Well," he laughed apologetically and almost sorrowfully, "the simple fact is that however good the doctrine and the practice are, they are not for me; I can't break away. Monday morning saw me going to the office just as usual. The work came along in regular routine and here I am every day just as before." And he grabbed my hand with a firm grasp as he said, "You really must excuse me now; I am rushing to my office to get off another letter for the next mail. You are all right, and what you represent is all right, but I can't break away." Then he rushed through the

door and up to the stairs that lead to his business office and I heard him say, "I don't believe I shall be able to break away so long as I live."

"Nateral Siens" Not Needed.

The Josh Billings method of spelling may be desired by Andrew Carnegie and some others, but naturalists have no use for it. So far as we know, the editor of "The Condor," a small ornithological magazine of California, is the only periodical afflicted by this verbal paralysis. Frank M. Chapman, editor of "Bird-Lore" has so "thoroly," shown its awfulness that there isn't much more to be said. In reply to the editor of "The Condor," Mr. Chapman writes:—

"While therefore, we must deny being so astonishingly ignorant as to have believed that 'The Condor' was the originator of what Dr. Palmer has called 'bob-tailed' spelling, we believe that we can accuse it of being the first scientific journal to apply this spelling to the names of animals. It is no concern of ours if the editor of 'The Condor' wishes to mar his pages with such peculiar verbal forms as 'peekt,' 'bilt,' 'thoroly,' 'gard,' 'thru,' etc., but when, in his zeal for spelling reform, he alters the names of birds, for the spelling of which there is higher authority than the Simplified Spelling Board, and gives us, for example, 'Olive-backt Thrush,' 'Ruft Grouse,' and 'Fesant,' we feel as though he had taken unwarranted liberty with the spelling of the names of friends, and we protest against these disguising changes, just as the editor of 'The Condor' would protest if we spelled his name Josef Grinel.

The True Christmas Spirit.

BY CAROLINE CLARK HINTON, NEW YORK CITY.

The Christmas season should be to us a period of happiness and rejoicing. To many, it has become merely a burden. After the New Year, we see many women in a nervous, exhausted condition—the result of this period of worry, discontent and actual unhappiness. They are the victims of the modern system of "give and take." To many

the value of a gift is of more importance these days than the love that goes with it, while the Christmas spirit of charity is lost in the dissatisfaction such a system naturally causes.

Since charity is love, the Christmas spirit should be one of love and not of commercialism. Generous impulses and good acts should rule the season of Christmas. Then the New Year would dawn with happy homes instead of nervous prostration.

"Holidays are such a nuisance," one pale woman is heard to say, and of course, by Christmas Day all of her Christmas spirit is dulled if not actually dead. Her spirit reflects on the children. The mother, irritated, spoils their illusion by telling them there is no Santa Claus. The child of to-day seldom believes in "Santy" and the reindeers. What a heart-breaking pity this is. Let the children believe in the world of fairyland as long as possible. All too soon they will awaken to realities. Let the mother who has the burden of Christmas in her heart make it lighter by saving the children's sweet and early illusions.

It is only through childhood that we can hope to retain the true Christmas spirit, for Christ loved the little ones, and His spirit should be felt through their joy.

Scientific Training to Think.

There is an absurd notion that ability to think is a gift of heaven the same as the gift of the artist, the violinist, or the organist. This is little less than a popular superstition; indeed, it is almost an educational superstition.

Have you ever tried to combat an intelligent man's superstition that it rains toads and earthworms, that the change of the moon changes the weather, that there is a line storm on March 21 and September 21? Or even an intelligent woman's superstition about a bird's flying into the window, or about a dog's barking at night, or about the breaking of a looking glass, about seeing the new moon over the right shoulder, or the more senseless thirteen or Friday superstition? If you

have ever really faced any deep-seated superstition in the case of an intelligent man or woman you can suspect the problem that must be faced by educators who say that skill in thinking which can make desirable character can be as scientifically taught as any branch in school, and that the differences in result will be no greater than in the case of arithmetic.

The first and most important issue, educationally, therefore, is to uproot this superstition, is to convince the educational world of our day that in everything that is taught by which a child knows more, does things better and says things more correctly there is a way to so know, to do, and to say things as to form character through the thinking.

Have you read Scott's "Guy Mannering"? If so, do you remember what a strange, uncertain feeling you had because it did not in all respects come out as you were led in your feeling to think that it was coming out. There is, probably, no other great novel which has the same psychological effect. Did you ever know the cause of it? It is said, upon what seems like good foundation for the statement that Sir Walter Scott during the writing of "Guy Mannering" lost a popular superstition which had gone with him through life up to that point, that he had accepted it and had been influenced by it until he started to build a plot thereon, and then the charm vanished, sense supplanted superstition, and he wriggled himself out of his dilemma as best he could, producing thereby probably the most fascinating novel, psychologically, that has been written.

Whatever of truth there may be in this long-believed account of Scott's mental action, it is true that there should be just such a transformation in the educational life of today. We should see to it at once that our superstition as to the futility of scientific teaching of skill in thinking is superseded by unswerving faith that the public schools can lead children to make noble characters through the way we teach them to think while

we are leading them into knowledge, into doing things, into saying and writing things well. So may it be.—*Journal of Education.*

Grass for Rest, Not for Death.

But if this life be no dream and the world no hospital—if all the peace and power and joy you can ever win must be won now, and all fruit of victory gathered here or never—will you still, throughout the puny totality of your life, weary yourselves in the fire for vanity? If there is no rest which remaineth for you, is there none you might presently take? Was this grass of the earth made green for your shroud only, not for your bed? And can you never lie down *upon* it but only *under* it?—*Ruskin.*

Nature's Calling You.

BY BURNHAM W. KING, NEW YORK CITY.

Can you hear the voices calling,
As you sit beside the fire?
While your ears are filled with ringing,
Like the music of a lyre?

Can you feel your heart is throbbing
As you look into the blaze?
Can't you hear the red Gods singing,
Luring strains of ancient lays?

Will you heed the soft blown whisperings
As they're borne into your ear?
Do not spurn those tender lispsings
That in vain to you appear.

You can see those phantoms gleaming
In the logs upon the fire,
Some weird form or face revealing
As your fancy may desire.

Don't you know it's Nature calling,
In a voice so soft and low?
As your head is gently falling
And to slumberland you go.

Now your dreams are sweet, alluring,
As you reach the land of Nod.
Filled with visions not enduring
In those realms no man has trod.

Then you wake from such sweet dreaming,
Look about you while you may,
See the sun its bright face beaming,
Bids you welcome to the day.

So you go to Nature seeking,
With a mind for truth and lore.
Put your soul into her keeping,
She will fill it from her store.

Now you care no more for dreaming,
For you take another view.
Everything that was but seeming,
Nature now reveals to you.

CORRESPONDENCE

AND INFORMATION

Nature in Education and Recreation,
Hamilton, Ontario, Canada.

To the Editor:

On page 262 of the October issue of *THE GUIDE TO NATURE*, I notice "Practical Suggestions," and I desire to remark that it is perfectly delightful to spend one's time with nature, drinking in the perfume from the flowers, and watching the birds and bees and all other grand and glorious scenes which God has given us "out in the open." These things are all very nice, but if you could combine a little "bread and butter" with them, I think it would do no harm. In other words, show what has been done, or what can be done, and what might be done by the lover of nature to turn to practical use, and to convert into dollars and cents the knowledge we might acquire in the "Garden of Nature." It might do good and could do no harm to show your readers how they might earn an "honest penny" by keeping bees, or growing violets, or raising chickens, or watching the early lettuce grow, or doing some other thing which, while it might arouse within us a love for the beautiful, would at the same time not obscure the practical part of our lives.

I think your magazine with its reading and all its beautiful pictures is just beautiful.

Yours truly,
FREDERICK W. WATKINS.

This magazine, and The Agassiz Association that publishes it, stand for guidance in the study and love of nature for their own sakes, in education and recreation, but not in money getting.

A man may enjoy his business and love it; he should do both; he may likewise derive some pecuniary income from his recreational pursuits.

Have some work in life that you can perform with all your power, and let that work be what you can do the best. By that business or profession, serve humanity to the best of your ability, and earn a living for yourself and those dependent on you. Have some recreations that constantly re-create you, that develop and enlarge your mind, that refresh you and keep you on a high plane of thought. Do not waste your life in play, and do not continually scheme and plan for money. There are many things in the world that are more valuable than money.

There have sprung into existence within a few years several prominent and beautifully illustrated magazines professing, by their titles and announcements, to take people out of the crowded cities and out of their high-pressure selves into the charms of suburbs and country. The theory has been inviting and good but the practice has sometimes been pernicious. These magazines have for the most part done incalculable good, but in many instances much harm. They have gone too far in specifying "what can be done, and what might be done by the lover of nature to turn to practical use, and to convert into dollars and cents the knowledge which we might acquire in the "Garden of Nature." They have portrayed with all the art of words, tabulated figures and illustrations, how any one can move to the suburbs or the country and pay rent, the mortgage or even the entire cost of the home, by keeping a few bees, raising mushrooms, chickens, violets or pigs. Some have even advocated bullfrogs in a neighboring marsh, and in a "runway" skunks for their furs. Articles on pets and plants for their own sake have been returned to the editor of this magazine, with the subject matter

commended but requesting addition of "practical" suggestions. Because such additions have been refused, the articles have not been published. Many so-called practical papers have been issued in those magazines that are to inexperienced people deceiving in their allurements and fanciful assertions. Several instances have come to my knowledge where confiding people have moved to a country home, and have lost all or nearly all of their savings which they invested in some of these schemes. Is this what our correspondent wants?

Money can be made in keeping bees, but that is for the professional apiarist, who reads such a magazine as "Gleanings in Bee Culture" that professedly and actually helps in the business of keeping bees for pecuniary profit. There are poultry magazines that go straight to the business question of housing and caring for eggs and chickens so as to make the work profitable. Men have become rich in raising violets and lettuce, but they did their reading in magazines specially prepared for the florist and the gardner.

If you have the talents of a lawyer, be a lawyer. If you move to the country for the enjoyment of nature, do not become an amateur money-making apiarist, florist, poultryman, bullfrogger, mushroomer or skunkite. Have a few chickens if you like them, or even a tub with a bullfrog if it affords you mental stimulus and pleasure—but do not keep a goose and expect it to lay a golden egg.

There is not one particle more sense in your thus devoting time to the earning of an "honest penny" than for the successful bee keeper or poultryman to get a few books and magazines on the law, and going to the city to set up as an amateur lawyer so as to add an "honest penny" to the bee business or to buy a patent chicken food.

Every person has the God-given power to do something well. He may do a little of other things and find interest and pleasure in many things. But he can best get his "honest penny" in his ONE thing.

This magazine, so long as it remains

under the present management, will, for two reasons, *not* correlate the guidance to nature into dollars and cents:

1. In these days of intense competition, it requires skill to make money in any phase of nature, which means that one must be a specialist. We cannot inform the specialist so well as can his special magazine.

2. In valuable information, in the mental recreation that soothes weary nerves, and in helpfulness toward the appreciation of nature as a relief from the money-seeking business or profession, this magazine is offering better guidance than any other, and will continue to do so.

* * * *

We shall cling to the God of outdoors; let others take care of mammon. We never did like hash—in magazines. Some things do not mix well. A little knowledge is a dangerous thing. We shall never induce our readers to spend their savings of the city on bullfrogs and skunks in the country.

But come; let us go take a walk. You are right—"it is perfectly delightful to spend one's time with nature drinking in the perfume from the flowers, and watching the birds and bees and all other grand and glorious scenes which God has given us 'out in the open.'"—E. F. B.

Since the above was written, we have had an example cited where the recreation may be carried to an extreme, where common sense was lacking. Says a correspondent:

"I know of a man in the northern part of New Jersey who devoted all his time to the study of mosses, while his wife took in washing. 'I bet you' that was practical."

(Such is the appreciation of moss study by humanity! Perhaps this specialist was a teacher of botany and the salary so small that his wife had to "take in washing." The world pays its professional students of nature in a manner to make it not surprising that such situations exist!)



Stop "Teaching" Nature Study.

[Reprinted from the Nature Study Department of the "Pennsylvania School Journal," Report of the Convention of School Superintendents at Erie, Pennsylvania.]

Dr. Edward F. Bigelow, the international president of The Agassiz Association and editor of the nature and science department of "St. Nicholas Magazine," followed in a good-natured but serious denunciation of the general methods of nature study. Elementary science stands for something quite distinct and apart from nature study. Nature cannot be harnessed to the dry, hard lines of text-books. "One fact discovered by the pupils working with the teacher is worth a thousand that are pumped into them. A little girl nine years old was the first to discover that the limbs of trees are constantly moving; another little girl discovered that caterpillars are partial to certain colors."

DISCONTINUE TEACHING "NATURE STUDY."

The learned gentleman who has preceded me spoke enthusiastically in the interest of promoting nature study teaching in the schools, but in his eager desire to have nature well taught he has unconsciously spoken more than I think he intended. He tells you that it is some twenty years since effort was first made to teach nature study in the schools and he frankly admits that these efforts have not been successful except in a very few isolated cases, and even these only a partial success. He goes on to urge you and the few teachers present to help remedy all of these failures of the past two decades. He means all right; he feels the importance of the subject and does not give up evidently a particle of hope that it may yet be done rightly. Let us turn aside for a moment from what he has

said and search in your own experiences for schools wherein nature study is taught as it should be. You and I know of a few exceptional cases where the work has been a perfect success, but we also know that the greater the success of teaching nature study in these schools has been the more the teacher has expected the pupils to do original work for themselves. Let us profit by this key to the whole situation, and let us frankly admit that most teachers have made a failure whenever they have depended upon their colossal knowledge and their ability to impart it to the pupil. So the moral of the whole thing is, sit down and give the pupils a show. The teachers' nature study has doubtless been a success in some places and a failure in many for twenty years.

But nature study by the boys and girls *always has been and always will be a success*. The child is a born naturalist; he has just the right exploring instinct and the inquisitive eyes to make him the ideal student. Woe be to the teacher who attempts to teach him, for he knows more than she does in most cases; and even if he does not know more he has the greater activity and the keener eyes to find out about things. Therefore, the logical conclusion is that if we are to have more and better nature study in the schools it must be by putting more upon the child and less upon the teacher. Experience has taught that the best method of putting such nature study upon the child is through young people's organizations. The oldest and most successful of these is The Agassiz Association, founded by Mr. H. H. Ballard, of Pittsfield, Mass., in 1875. For some thirty-five years this organization has been successful, and under

the best management of any form of young folks' interest in nature study that the world has ever known. From his example of thus teaching God's Works started the many Chautauquas for teaching God's Word and literary matters. Under the inspiration and instruction of the first two years of astonishing success of The Agassiz Association, the Chautauqua was organized in 1877, and you know how that has spread and how other bands of young people more or less connected with the churches have been organized.

From the naturalist point of view there were other failures who have profited by the existence of The Agassiz Association Chapters. Notable among these were the Junior Naturalists of New York State. This organization under the management of Mr. John W. Spencer, familiarly known as "Uncle John," has always been a success. The great good that he has done in getting boys and girls to do and see things for themselves is beyond the scope of words to measure or to do justice to. Did any strict school-wise man attempt by any organization of teachers in any line of work ever anywhere nearly equal the wonderful achievements of The Audubon Societies and The Humane Societies? The secret of their success has been, like that of The Agassiz Association—organizing the young people, encouraging them and giving them aid when it is needed and then letting them do things for themselves. In Rhode Island, although it is a little state, scarcely less has been the success of the Nature Guards, an organization in connection with the State College of Agriculture under the management of Prof. Fred W. Card. Here the same principles have applied; when the boys and girls have been encouraged to realize that they knew something themselves, and that some trained teacher does not know it all; and the young folks have been given the impression that they are not overshadowed by a mountain of knowledge, the work has been a success.

In New Jersey quite recently the same thing has been demonstrated by

Mrs. Georgiana Klinge Holmes in the organization known as The La Rue Holmes Nature Lovers' League. She has not so much tried to teach as to organize and set boys and girls to work for themselves, and here again the wisdom of this plan has been demonstrated. If further arguments were needed I might be excused from personally pointing to my own "Nature and Science" of "St. Nicholas" and to the "St. Nicholas League." The work of these young people for the last eleven years has astonished the world, and the whole secret of this success has been simply encouragement to the young folks to do things for themselves. Such an authority as John Burroughs has strongly denounced the school teaching of nature study. He says, "I should not try to teach but should introduce nature and the young people to each other and let an understanding and intimacy spring up between them."

So overwhelming is the logic of the whole situation that we should discontinue this pedagogical, perfunctory, cut-and-dried routine, whack-it-into-their-heads method of many teachers to teach nature study. Sit down and let the child teach you. Be a learner and an enthusiastic one in this wonderful world. At the very best we all can encompass but little of it.

I do not say that the AA Chapters are the only organizations in existence that have successfully solved this problem, but I do say that these Chapters and the allied organizations have for thirty-five years demonstrated to older people, who for the last twenty years have been trying to teach nature study, that the thing cannot be taught in the strict sense of the word. Elementary science can be taught thoroughly and systematically, but nature study is elusive, spontaneous, and cannot be put in from the outside but must emanate from the heart.

All present who were interested in this work were cordially invited to address the genial editor, Mr. Edward F. Bigelow, at Arcadia, Sound Beach, Conn., for further particulars of the AA organization of young people.

THE CAMERA

The Protar for Nature Work BY HERRN HYPERFOCUS.

If I could afford but one lens for nature work, I should select a Protar. To go with this work give me a long



A PHOTOGRAPH BY THE AMERICAN MAKE
OF PROTAR VIIa.

By L. F. Brehmer, Rutland, Vermont.

focus camera with plenty of bellows room, abundant plate holders and a heavy, rigid tripod. To be sure, a reflecting camera would present many advantages, but the lack of one will not preclude the possibility of successful nature work, for much of the results in this highly interesting branch of photography lie in the ingenuity of the amateur in approaching his quarry through proper appreciation of the habits of the game. The animals you are after have long periods of comparative rest when they fancy they are alone in the woods, and a study of their habits

will give the amateur many a photographic shot even with the non-reflecting camera.

A capital addition to the photographic outfit is a tilting tripod top, by which the camera may be pointed upward at an angle so as to take a tree branch or a nest without disturbing the centre of gravity of the camera, or in such cases where you photograph downward on flowers or ground nests, the attachment will be found invaluable. A tripod brace to lock the tripod legs together is another useful accessory, and will save many an upset of the apparatus.

A Protar lens is composed of two complete corrected lenses, and, strange as the claim may be, the single elements of the Protar are corrected well enough for architectural tasks, while their speed is equal to the ordinary doublet known as the "rapid rectilinear," supplied on most cheap cameras.

When your Protar is selected with single elements which are alike, the speed of the doublet is F 6.3. When the elements are unlike, the speed drops to F 7 and to F 7.7 in cases where the focal lengths of the elements are widely dissimilar. Used alone, the single elements give speed ratings of F 12.5 and therefore require when wide open exposures four times as long as the doublet at its full opening.

The Convertible Protar can be easily adapted to between—lens metal shutters and arranged in addition so as to provide for the further accession of elements of still different focal lengths. Such a collection of lenses mounted to interchange is known as a Protar Set and the possessor of such a set can tackle almost any photographic problem and feel certain that an appropriate focal length will be found in some

element or combination of two of the elements of his set.

Let us see how the Protar combinations work out in practice. Say we have a Protar which has as its components two lenses of focus $13\frac{3}{4}$ inches each. By using the lenses either together or singly, two focal lengths are available. The single lens will make a hill or a distinct building look twice as big as the doublet, a tremendous advantage when you cannot approach nearer to the hill, for it means the same as though you had instantly taken an aeroplane ride and annihilated half the distance of the camera. In practice this would probably mean the middle of a pond or a point over a deep valley, where obviously the camera never could be placed.

A Protar set is like a card index. You can put it together and rearrange it any time in another order if you care to. Some Protar lenses have dissimilar components. This is the same as buying three lenses for the price of one. If your image is not big enough with the lens complete, try the single element next longer in focus, or if needed, the third. Notice that the camera need not be disturbed during all these changes, which is a great convenience. Many times in photography we find that one and only one viewpoint is permissible. The man with a Convertible Protar can easily adapt his focal length to any exposure at hand.

Let us take as an example, two unequal focus elements of $13\frac{3}{4}$ and 11 $\frac{3}{16}$ inches focus, making when combined a doublet of focus 7 inches.

Now let us suppose a third single combination unlike the others be added. By the law of combinations, we now have three focal lengths in the single elements and we can make three pairs in addition, or six separate and distinct focal lengths are now available. Think of the convenience of having all the lenses usable in the same camera with one shutter, with one flange and one front-board!

This set is furnished in case with compartment for each lens. A larger variety has ten available focal lengths.

Especially useful is the Protar in

nature work. Suppose now that we wish to photograph a nest on the ground with the eggs or little ones just hatched out. While at first, it would seem wise to photograph at a near point, there are many reasons against this procedure. Our object is to get a correct representation of this nest and its inhabitants in their natural surroundings. If we stay near, we photograph merely a frightened bird or perhaps we find no bird at all. But the procedure is very easy in such a case; move back and use a longer focus lens, i. e. a single element. The movement away from the nest removes a source of disturbance to the mother bird, but the size of the image is yet the same since a longer focus lens is being employed. The bird is now in its natural pose, and the nervousness being removed, you still find no difficulty in making the longer exposures, as the birds are now fairly quiet.

The use of a long focus lens means better perspective. The proportion of nest to surroundings is now better rendered, the whole effect being more natural. Use a long focus lens when possible and your nature pictures will show a marked improvement.

The same remarks obtain when photographing flowers. This fascinating branch of photography demands more attention than has heretofore been given. There are some precautions to be observed, one being to use only color-sensitive plates for this work.



A PHOTOGRAPH BY THE GERMAN MAKE OF PROTAR F. 6.3.

By Brown Brothers.



A PHOTOGRAPH BY THE AMERICAN MAKE
OF PROTAR VIIa.

By L. F. Brehmer, Rutland, Vermont.

The ordinary plate is color-blind and persists in rendering blues as white and reds and yellows as black. all of this can be obviated by the use of a proper plate, sensitive to yellow and green, and in the case of deep red flowers, plates sensitive to all colors (panchromatic) should be employed. A Ray Filter will further improve results, for the color-sensitive plates, although showing marked sensitiveness to the colors are yet over-sensitive to blue and the ray filter is a further corrector.

Perhaps we wish to photograph a deer in his native haunts. The short focus lens will make a quicker exposure, it is true, but in order to get a sizable image, we must approach pretty near the animal. This means that we have tremendous difficulties, as the deer is away before we make the picture. With a single Protar of long focus, we can photograph as big at 200 feet as we tried to do at 100 feet with the doublet, and as the animal is at ease and not on the alert for a spring

into the brush, we shall have a chance for a longer exposure.

As wide angle and long focus are opposites we find that when we increase the image size, we decrease the angle of view included, and vice versa. Therefore when we photograph the camping place in the woods, the double Protar and its wider angle is essential. The fortunate possessor of a Protar set can of course have a choice of image scales and angles at will, depending on the units which he possesses. Certainly no lens can offer the variations for the money invested as the Protar set, and the beauty of it is that only two units are necessary at the outset.

The Protars can be pressed into service for architectural subjects. As stated before, the single combinations are wonderfully corrected, and are far superior to the half combinations of symmetrical lenses, which must be stopped way down if definition is expected. The advantage of long focus perspective is well known, but we cannot always make use of them in architecture on account of the restrictions of working space.

It is in the mountainous country that the Protar single elements are of untold advantage. Many a picture you have seen of mountain scenery where the foreground was so prominent that the mountains seemed to show no height at all. Such a picture results when a short focus lens like that on the ordinary kodak is used for the purpose. In this case, we use the single element of the Protar and make the mountains prominent.

Although the single Protar elements have but a speed of $F\ 12.5$, they are fast enough for this work, since we will employ them mainly on distance work where the exposure is of necessity shorter on account of the blue light which such objects reflect. You have seen the purple cast of a distant landscape in nature, and noticed the rendering of it on the painter's canvas. Knowing that a photographic plate is the most sensitive to blue, we make allowance for it in shortening the exposure.

(Written in the Autumn.)

The autumn is at hand and the gorgeous cloak of nature is now in evidence. We now have a new problem in photography and a word or two on color value may not be amiss. Provide yourself with a ray-filter of good quality and a box of color-sensitive plates. The latter plates are obtainable at any up-to-date stock-house for photographic supplies, and may be purchased in two grades, one sensitive for yellows and greens and the other, for all colors, including the reds.

The human eye has the happy faculty, as evidenced by the worker in monochrome, of translating the color values of the various colors into a scale of luminosity. Thus when he represents blue he generally shows it darker than yellow, whereas yellow is represented light. The white cloud on a blue sky would be distinctly shown by the sketch artist, but the camera picture usually shows no clouds at all, and in many cases shows a light red as though it were black and a deep blue, which is a dark color to the eye may be almost the same tone as the whites of the pictures. This "color blindness" of plate

makes the ordinary photograph of an autumn landscape a dismal failure. The scarlet maples and yellow oaks, which stand out in a blaze of splendor in contrast to the sombre evergreens of the hillsides are completely buried in a monotone in the negative.

Now by selecting the proper plate which should be a Seed L Ortho or a Cramer-Iso for the early foliage and a Seed Panchromatic or a Cramer Trichromatic for the russet brown and red types, we can easily overcome our difficulties. Our negative becomes a thing of beauty and every delicate tone of color-luminosity is rendered, especially where we employ the ray-filter. The latter device deprives the plate of the excess of blue light and even shows the gradation in the sky from the lighter horizon zones to the darker portions more nearly overhead.

There are many little wrinkles in photography, as in other matters which are so familiar to the expert and to the manufacturer, that nobody ever mentions them nor do they appear in direction sheets. One of these is the fact that ray-filter shifts the focus of every lens, and for this reason, you should



A PHOTOGRAPH BY THE GERMAN MAKE OF PROTAR.

By Brown Brothers.

always focus through the ray-filter. The thicker the filter, the more the displacement. The longer the focus of lens used, the more the shift. In a short focus lens, the stopping down of the lens would probably counteract the slight shift in focus. The longer focus lens, such as the single Protar VII are more seriously affected.

In photographing a bird's nest with eggs, or the brightly colored eggs to show surface markings, the use of the color-sensitive plates and filter are highly recommended. Assuming your bellows is of sufficient length, this is the procedure when photographing to natural size. Extend the camera until the distance of lens from ground glass is twice what it is when focused on a distant object. Now focus by moving the camera bodily, to and fro, until the image is sharp. The sharp focus will come at the same moment the image size and object size are identical.

A very easy way is to place a ruler alongside the specimen to be photographed. When the correct focus is obtained the image of the ruler on the ground glass can be verified with the second ruler, and a slight shift in focus made till the size is accurate. It is not at all a bad idea to have the ruler show in the photograph as in this way the size of the specimens are readily shown.

For perspective reasons, use the longer focus Protar when possible. The proportions of the object are better preserved and a more pleasing photograph will result. The lens will have to be stopped down more, but this is of small moment as the objects are still. In copying a photograph or a drawing since we have a flat plane, the focus in this case does not matter, and the double Protar should be used.

In closing it is interesting to note that excellent portraits can be secured with the single combinations of the Protar. The $13\frac{3}{4}$ inch element is almost as long in focus as the regular portrait lens of the photographer, and the perspective is therefore of the same degree of excellence.

cal Company, Rochester, New York, and listed as VIIa for the convertible. These lenses are made in Germany at The Zeiss Works, and sold in this country by E. B. Meyrowitz, New York City, and called double Protars. Both makes are faultless and of highest optical excellence. Much of the best photographic work in this magazine has been done with Protars—E. F. B.]

Roses Hidden by Thorns.

To one who loves lenses there is no more interesting reading than the tabulated schedules—those formidable, thorny features of a photographic lens catalogue. I often think that such pages must be repellent to those who know nothing of lenses, but one needs only to push the thorns aside to reach the inward beauty of these wonderful specimens of workmanship, and to give life to focal lengths, apertures, "U. S." and other mysterious emblems and titles.

How like nature itself is the photographic lens catalogue! Some people pass by the most interesting objects and see nothing of charm or of interest.

As I was recently showing through Arcadia a party of girls who spent their week days in a factory, they frequently exclaimed, "Why! they pick up and seem to like any old thing that you or I wouldn't even notice." What a pitiful comment upon themselves is this thought in a world of wonderful, resourceful interests and beauty. Why are their eyes so blinded?

But pardon the momentary reversion and bit of soliloquy, and let us go back to the lens catalogue. What a pity it is that so many camera users, even those with plenty of money to spend on anything that will afford them pleasure, throw aside the lens catalogue as disagreeable propositions and masses of unintelligible data.

Not a very long time ago, a friend who has used a hand camera for years, said to me, "It never occurred to me that those lenses are for me to use. I thought the anastigmat and all others described in that Choctaw language were aimed wholly at the professional."

[Note—Protar lenses are made in America by The Bausch & Lomb Opti-

What a pity that he had been so near to a treasure and had never realized that it is a treasure.

"We love things not because they are beautiful, but they are beautiful because we love them." Is there anything more beautiful or more lovable than a high-grade photographic lens, looking at you with kindly genial light as if it were saying: "I am here to see things for you and to make them permanent. Don't you know that life is but a series of pictures and that they come your way but once? I will help you make these priceless visions unfading. Long after you and I are gone, the pictures we have made shall still exist for your successors to love and admire."

So open a photographic lens catalogue with reverence as you would walk with reverence by a roadside where you feel that there the ground is hallowed.

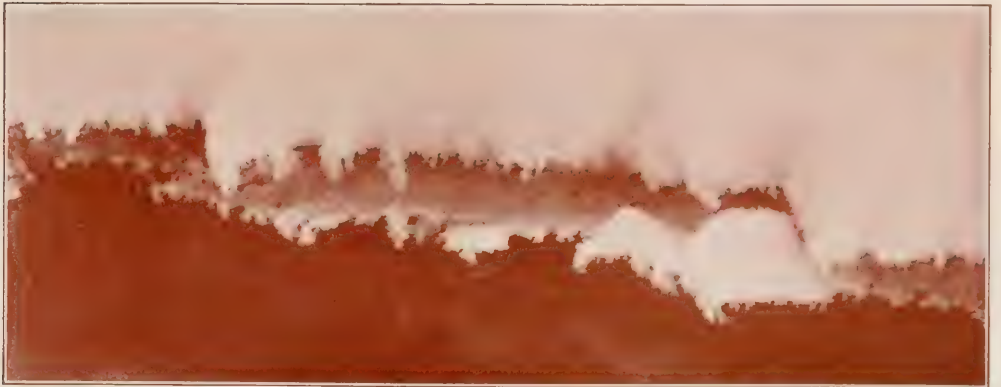
The Camera and the Snow.

We suggest to our camerists the fantastic forms of snowdrifts as an alluring field for winter work. Herewith are offered examples of what may be done along this line. One shows the snow curiously drifted on a stone wall; the other a drift within the hall at Arcadia, where, during a driving storm, the snow was carried through a tiny crack in the door and was formed into the curved shield by the side of the umbrella holder, a part of which ap-



A FANTASY IN ARCADIA HALL.

pears in the upper right-hand corner of the illustration. It will be noted



A FEATHERY DECORATION OF THE BROOK BANK.



that the drift evidently started against the partition and then slanted from it. The caprices of the snow in the wind

are many and varied, and we hope our camerists will record some of these interesting formations.



The Open Mouth of a Wolf.

BY ARTHUR INKERSLEY, OAKLAND, CAL.

Wave-worn rocks or crags weathered by the frosts and storms of many years often exhibit strange shapes, which the fanciful resolve into portraits of noted persons or into heads of lions, elephants, recumbent figures of women and so on. The combination of rocks along a surf-beaten shore and of breaking waves similarly produces curious effects. The accompanying photograph, made by Mr. J. K. Oliver, of Monterey, California, near Point Lobos, of a bold, rocky promontory jutting out into the Pacific Ocean, shows a remarkable resemblance to the open mouth of a wolf, and is probably as good a photograph of its kind as could well be obtained.

He Doesn't Like Out-of-Focus Photographs.

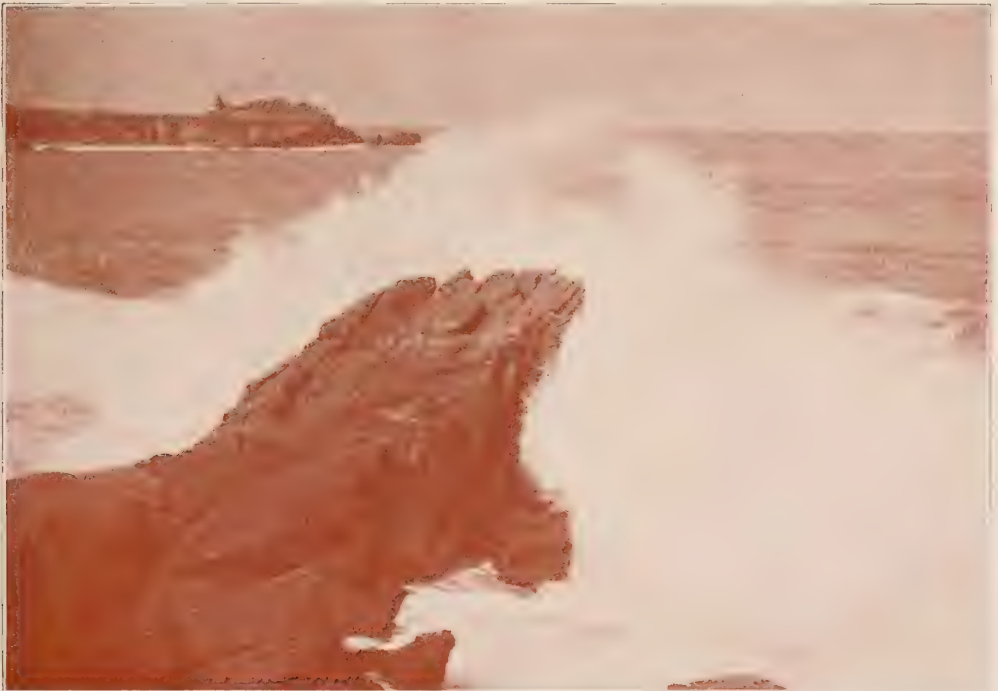
Halifax, Nova Scotia.

To the Editor:

At the present time fuzzy pictures are nothing more or less than a fad. We are taught by a special class of



A BROOK NOT FAR FROM ARCADIA.



THE RAVENOUS "WOLF" FEEDING ON SPRAY.

photographers to make pictures as our eyes see them. Surely, oh surely, some of the reproductions that appear in the leading photographic magazines could not have been made as the eyes of the so-called pictorialists saw them. If so, my advice is, "Consult an oculist at once."

I have rejected three of the leading monthly magazines on this account, for

when one pays fifteen cents per copy, or one dollar and fifty cents per year, he wants value for his money, and does not care to receive the photo-engraver's out-of-focus, screen work, nor the printer's ink smudge. We owe many thanks to the editors of these and other magazines for the titles below the pictures, as I am sure that no one under the canopy of heaven could ever guess what they are. On account of these silly pictures many an ambitious amateur has doubtless "thrown up the sponge" in utter disgust.

The foregoing may seem ridiculous to the pictorial (?) band. Nevertheless they themselves will sooner or later become tired of such work. As the old saying goes, "Chickens always come home to roost," so will this class of photographers return to their first love. While not a confirmed crank on photographs that are so sharp that they are likely to prick one, yet I want to see pictures that shall show some semblance of detail, and to make them so that one may know what they are: In some prints that I have seen in genre work it was an utter impossibility to tell whether the figures were men, women or children devoid of eyes, nose and mouth, three essential parts of the human body. These pictures were raved over and called works of high art in photography. I mentally remarked, "Heaven help the low art."

As I have given vent to my feelings on this important subject, I should like to have the opinion of others, as no doubt my heterodoxy will cause many to "hem and haw," and say that the writer is a fool. But fool or not, he is truthfully expressing his view in the matter. Everybody knows that a photo-engraver can do wonders in many ways with halftone cuts, and to my mind the majority of these beauti-

ful (?), so-called "atmospheric" pictures were prepared in the workroom of the engraver.

J. H. JOST.

The Twin Oaks.

Yarker, Ontario, Canada.

To the Editor:

I send you a photograph that shows a rather remarkable freak growth of a white oak tree. The branch from the tree on right is almost perfectly united with the trunk opposite, as can be seen from the photograph.

Yours truly,

A. M. EWART.



THE TWIN OAKS.



Incorporated, Massachusetts, 1892.

Incorporated, Connecticut, 1910.

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From the Charter of Incorporation: "The purposes for which said corporation is formed are the following, to-wit: the promotion of scientific education; the advancement of science; the collection in museums of natural and scientific specimens; the employment of observers and teachers in the different departments of science, and the general diffusion of knowledge."

Christ—The Naturalist; Christmas Thoughts for Christians.

Christ was a Naturalist.

**In celebrating
His Birth and Resurrection
we fittingly use
Trees, Shrubs, Plants,
Flowers, Ferns, Fern Allies
(Christmas Green),
Parasitic Plant (Mistletoe)
and Birds.**

He drew His lessons from all nature
He communed with nature—He was a
Naturalist.

Are you in agreement with Him?

The only organization in existence devoted to all nature professedly in the spirit of Christ, is The Agassiz Association. It takes its name from Louis Agassiz, who believed in nature as the work of a Deity, and who had "use" for a God in the study of nature.

He opened the first session of the first great biological laboratory at the Island of Penikese (off the coast of

Massachusetts) by prayer. Read "The Prayer of Agassiz" by John Greenleaf Whittier. In the introduction to that poem Mr. Whittier says:

"The island of Penikese in Buzzard's Bay was given by Mr. John Anderson to Agassiz for the uses of a summer school of natural history. A large barn was cleared and improvised as a lecture-room. Here, on the first morning of the school, all the company was gathered. 'Agassiz had arranged no programme of exercises,' says Mrs. Agassiz, in 'Louis Agassiz; his Life and Correspondence,' 'trusting to the interest of the occasion to suggest what might best be said or done. But, as he looked upon his pupils gathered there to study nature with him, by an impulse as natural as it was unpremeditated, he called upon them to join in silently asking God's blessing on their work together. The pause was broken by the first words of an address no less fervent than its unspoken prelude.' This was in the summer of 1873, and Agassiz died the December following."

The entire poem is worth your careful

consideration, because it is in the spirit there expressed that The Agassiz Association has always existed. We are perpetuating that name.

"And one name forevermore
Shall be uttered o'er and o'er
By the waves that kiss the shore,
By the curfew's whistle sent
From the great, solemn air:
In all voices known to her,
Nature owns her worshipper,
Half in triumph, half lament.
Hark! a voice! (ah! a mortal tone),
Communion pause uncovered there,
And the dearest memory learn
From the Master's silent prayer."

President David Starr Jordan of the Leland Stanford Junior University, California, was a pupil in that school at Penikese and is at the present Dean of The Council and member of the Board of Trustees of The Agassiz Association. He is continuing faithfully in the enthusiasm and spirit of Louis Agassiz.

It was only a year after Louis Agassiz's death that The Agassiz Association was organized, and in its handbook the first President, Mr. H. H. Ballard, who still continues as a member of the Trustees, wrote as follows:

"What, after all, is our purpose in studying Nature? Is it to get for ourselves collections of rare and beautiful objects? Is it to amuse us during our leisure hours? Is it to fill our towers of observation and strengthen our minds by careful discipline? Is it to seek for constructive (first) knowledge and to become familiar with all the little strangers of the roadside and the wood? It is all this, but it should be much more. We ought to be learning the grand and solemn lesson that a Divine mind is showing its wisdom in every leaf and petal, and that a Divine hand is expressing its love in every raindrop and in every flower. This was the truth that filled the heart of him for whom our Association is named—this was the secret of this untiring zeal, and the key to his deep love of Nature."

The principles of Christ the Naturalist and a knowledge of a deity that forms all things, have always been important factors in The Agassiz Association, and have had thousands of supporters and loyal followers who have

bravely carried forward Louis Agassiz's banner.

But we have also had opposition, intense, atheistic opposition. It has come from a great variety of sources, and there are plenty of people in existence.



With great regard
Yours very truly
L. Agassiz
Rehoboth, August 25,
1862.

thoroughly devoted to science but who would be delighted to see The Agassiz Association perish from the face of the earth. If you have the slightest doubt about this, read the following letters written in the Christmas season by a grand master of biology in the atheistic school of science. The writer is generally recognized as one of the ablest biologists of this country, or perhaps of any country. He is at the head of the department of zoology in a great university, and has for years been the director of a large biological laboratory. To that laboratory come representatives of many colleges and universities who are diligent students of nature. We do not, for a moment, mean to imply that all who go there are in accord with the director's religious ideas, because opinions vary there as everywhere else. Read his letters as follows:

December 18.

"I do not approve of one part of your scheme, and I presume it is vital from your standpoint. Of course I approve of the study of 'nature,' but not of confounding 'nature' and God. I have no use for a God of any kind whatsoever. To deify nature in these enlightened days is to drop back to the days of darkest heathendom. It is to encourage superstition in the minds of children, and to burden their minds with a falsehood that must work harm and retard their intellectual growth."

* * * * *

December 25.

"Permit me to say that I have raised no objection to 'questions of nature in a strict scientific spirit.' Whatever I am able to do in answering such questions, I shall always be most willing to do. . . . I noticed that you spoke of your Organization as 'one for the Study and Love of God's Works,' and that towards the end of your 'Plea' you say the study of nature 'means to us a companionship and an intercourse with God Himself?'"

"Most people who view nature in this light are shocked when they meet a naturalist who declares himself an atheist. The superstition of the past has held the 'infidel' in horror, and although infidels have become numerous in science those who call themselves Christians are generally shy of contamination."

"Feeling that the time has come for presenting the facts of nature just as they are, without disguising them as the work of a Deity, I should hesitate to put myself in any position that would be misleading. Herein you may see why I would not wish to be identified in any way with an organization dominated by deistic conceptions or designed to encourage the decaying ideals of religious worship. With the greetings of the season."

Now this question comes home to you, Christian. Is this spirit of Christ the Naturalist, as expressed by Louis Agassiz and followed by the Association for more than the third of a century, to be driven out, or shall it grow to prosperity and disseminate in every land the doctrines for which it stands? It is for you to decide. So far as we know, we are the only organization that can thus appeal to you at this Christmas season.

Atheistic science in many and high places has had the aid of millions of dollars from Christian people. The Agassiz Association, the only organization in existence professedly and effectively promulgating nature from Christ's view point, has, in all its thirty-five years' experience, been aided by only a few thousand. Are you, Christian people, more interested in

atheistic science than in the point of view typified by Louis Agassiz, and carried on by hundreds of his moneyless but devoted followers?

Shall people be indifferent to nature or shall they have Christ's point of view?

All over the land we have prosperous Y. M. C. A. or Y. W. C. A. institutions in almost every city and even some of the villages, where young men and young women assemble in the name of Christ. These so far as they go have done excellent work in promulgating Christ's love of outdoor life. Thousands of dollars in many cities have been given them for that purpose, but have not they devoted more time to the swinging of dumb-bells and Indian clubs, and to other forms of muscle training, than they have in taking the wider view of Christ in studying and in being inspired by the objects of nature? Christ walked on the country road for his exercise. He did not swing Indian clubs. He went alone into the garden. He did not go to the synagogue for his best. He led his pupils to the top of a mountain. Whether His spirit in relation to nature and to our highest inspiration through nature, is great enough to continue to impress our young people, or whether the school of atheistic science shall have sway, is the most important question that can come to you, Christian, at this season of the year when you are celebrating with the emblems of nature the Birth of this great Naturalist.

Report of the Halcyon Chapter.

The Halcyon Chapter of the AA, located at Halcyon, California, was re-organized last June. The primary purpose of the Chapter is to make a study of the natural sciences, in connection with educational work at that place. Halcyon being located close to Oceano Beach, one of the finest on the Pacific Coast, and but a few miles from the rocky beach shown in the picture. Fine opportunity is afforded for study of ocean life, animal and vegetable.

Seaweeds, anemones, crabs, sea urchins, starfish, abalones, clams and sea birds of numerous varieties abound in



"THE ROCKY BEACH WHERE SO MUCH SEA LIFE ABOUNDS."

the waters and among the rocks. The accompanying photograph shows the sea gulls resting on the rocks, where they flock by thousands.

A study of clays will be taken up in connection with a pottery located at Halcyon as a department of the Industrial School of Arts and Crafts.

Besides the numerous wild flowers and plants that offer themselves for botanical investigation, one of the largest of the western seed farms, where flowers are grown by the acre, furnishes much interesting knowledge in the development of rare plants.

A fine collection of minerals and birds belonging to the locality is open to the use of the Chapter, and other collections will be procured as the work advances.

One feature of the Chapter is a class for children who are taken on nature walks by one of their teachers, discovering the secrets of nature for themselves and deducting valuable lessons

from the specimens brought to the classroom.

As recommended, the Halcyon Chapter are studying the mineral kingdom first. The study of the Archean Age brought to notice the great world element—silicon, the great mineralizer, without which we could hardly have a stable crust on the planet. The main characteristics of the other geological ages have been considered up to and including the Carboniferous Age.

The enclosed picture of the rocky beach, where so much sea life abounds, was taken by a local amateur photographer.

JANE W. KENT, President.

(From a personal letter from the President.)

We hope to make this Chapter of real value to the Association, as we have a number of scholars and students of real worth with us. Stanford students and people of knowledge from all sections of the country.

THE GUIDE TO NATURE

Volume III

JANUARY, 1911

Number 9



"The Beauty of Bare Branches"—See page 390

EDWARD F. BIGELOW, Managing Editor

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(Also see previous page)

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The Story of Success Park.

Success Park is the name given to a small portion of lawn at the corner of Mason Street and Putnam Avenue in Greenwich, Connecticut, by its originator, the present Superintendent of The Boys' Club. It dates back to February 12th, Lincoln's birthday, of 1910, when the corner stone was laid for the foundation of the first building to be erected in the park. The stone is hollow and contains a 1910 Lincoln penny and the names of the twelve boys who built the house. The instructor's intention was that boys should be taught practical work of many kinds in a practical way, and at the same time should be earning something to make the work more attractive. The little dwelling house was planned in the usual way, and the boys learned to read a plan and to build to a scale of two inches to one foot. All the materials used are made to that scale and everything was done precisely as in a larger house. It was built on the third floor of the club house in three sections. Open fireplaces, sanitary plumbing and complete furnishings were intended but



THE LITTLE DWELLING HOUSE.

lack of time prevented their construction. It was placed on its present foundation on Fourth of July, and during the first two months more than five thousand visitors viewed it and the miniature park, to which another boy has since added a reinforced concrete garage. He has also wired the house and the grounds for electric lights. The park was laid out by the superintendent assisted by three boys. Nearly one hundred dwarf trees and shrubs were planted, miniature boulders were scattered here and there to give a natural effect, and around them were placed small blooming flowers and trailing vines, thus producing a pleasing and harmonious result.

The ground about the house was terraced and ornamented by winding drives and walks. Miniature pink begonias were planted against the foundation of the house. Irish yews, evergreens, Japanese maples, barberry bushes, chestnut and other varieties of dwarf trees are scattered about. It is planned to widen the streets and avenues in the park next season, and to plant about two hundred dwarf shade trees on each side of the drives, also to lay a conduit for electric street-lighting. It is further planned to em-

ploy next year's school vacation in building a miniature brook with waterfalls and concrete bridges where the brook will cross the avenues. The brook will end in a small lake with a tiny island on which will be a light-house to be operated by electricity. On the lake will float United States battleships and smaller boats. On the shore will be a club house and docks. Next year will see a parsonage and a stone or concrete church with pews, altar and organ. It is planned to fill the park with cottages of different designs as fast as the boys are able to build them, and also at a future date to enlarge the park.

The manual-training shop is a large barn reconstructed during the last vacation by three of the boys and the superintendent. It contains thirty-four benches, and mechanic's tools of every kind for doing real practical work. The shop is well ventilated and heated and is lighted by thirty-five electric lamps. It also has splendid sanitary arrangements, the shop being scrubbed and disinfected at regular intervals. There are now ninety-three enrolled members. During the first four weeks the average daily attendance was forty-five and one-half, and in that period

the boys made nearly one hundred dollars' worth of salable articles, the proceeds of which they reserve and divide according to the record of daily attendance, deportment and efficiency. The boys pay dues of fifty cents per month. The class motto is "Learn and Earn."

There is a class in electricity, one in pyro art, and two in drawing are soon to be started. The Governing Committee is planning great things for the boys' future benefit. A sociable feature is a monthly gathering with music, games, dancing and refreshments—all furnished by the boys themselves.

About five hundred volumes of good books are in the library, and a great number of magazines in the reading room.

Visitors are always welcome.

The GREENWICH OFFICE of

The GUIDE TO NATURE

is at Rooms 17-18, Abrams Building
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A. W. READ



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Visitors welcome.

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The Guide to Nature

Its Home—Arcadia—and, Perhaps More Than Both of These, the Corporation—The Agassiz Association—Mean much to Greenwich. They all merit your co-operation—at least, *Investigation*. The Doors and Books—everything—are open to you.



THE HANDIWORK OF THE BOYS' CLUB, GREENWICH.

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A CORDIAL INVITATION FROM STAMFORD, CONN.

BUSY AND BEAUTIFUL STAMFORD

The City of Flourishing Industries and Charming Homes

The Census of 1910 shows how rapidly we are growing. The present population is approximately 30,000, an increase in ten years of nearly 60 per cent.

The wealth of the community (according to the grand list) has trebled in a decade. Stamford's manufactories are noted for the excellence of their products. "Made in Stamford" is synonymous with "Made well." The industries located in Stamford cover a wide range: Yale locks, typewriters, insulated wire, gas engines, electric motors, stoves, wall paper, thread, bronze powders, artificial rubber, artificial leather, chocolate, chewing gum and ink, are produced in large quantities. Every plant is busy and prosperous. Skilled workmen have pleasant homes near the plants where they are employed.



1911

A Happy New Year—All of It

(Really NEW to those who make it so)

to You All

From Our Arcadia and All It Represents

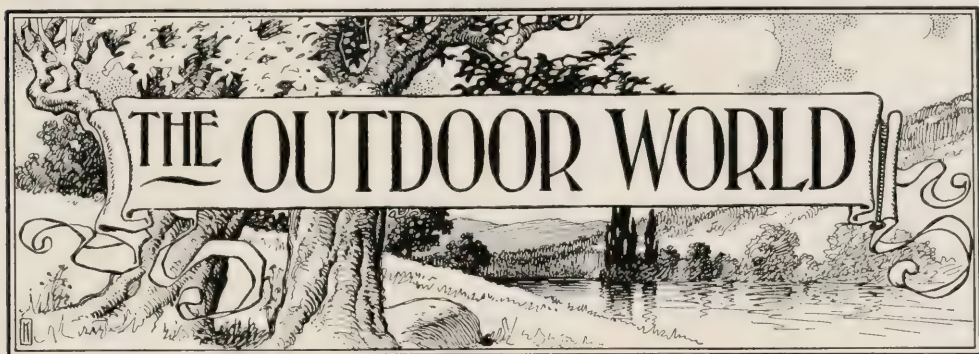


The naturalist greets the New Year, though a stranger, as cordially as an intimate friend, because pleasant acquaintance with previous members of the family of Years has told him how excellent are their "chummy" qualities. The New Year, more than the holidays, offers innumerable gifts of beauty and interest, to those who will receive them!





THE WHEEL THAT IS LIKE MEMORY—BEAUTIFUL IN ITSELF AND IN ITS JOYS AND PATHOS.
But some parts are missing. Does the Wheel or Memory know how much of this is lost?



History of the Roxbury Wire Mills

By JAMES B. DAVENPORT, Stamford, Connecticut

Explanatory Note.—The “wire mills” and the picturesque surroundings are the Mecca for students and lovers of nature in Stamford, Greenwich and vicinity. Here for many years have come fine equipages, automobiles, pedestrians, bicyclists, camerists, geologists, botanists—and many lovers who were students of each other, at least for the time, and not students of nature. Guide-boards scattered for many miles in every point of the compass tell direction and distance to the wayfarer. Every camerist shows you his collection of “wire mills” souvenirs; and every chauffeur turns his car in that direction when left to choose “any of the beautiful country roads in the northern part of Stamford.”

Because the interest is so widespread, we publish this valuable historical article by Mr. Davenport, who is probably the most competent person in this locality to write its history.—Editor.



THEODORE DAVENPORT was the son of Major John, a charter member of the Society of the Cincinnati, and grandson of Colonel Abraham of “Dark Day” fame. Mr. Davenport,

then a young man of thirty-three, associated himself with William Lacon, an Englishman, and in 1825 purchased about seventy acres of land at what was then called North Stamford, containing a gristmill and a sawmill. There they built one of the first rolling mills in the country. The partnership of Davenport and Lacon on account of some disagree-

ment continued only a short time, when the property was ordered sold by the Superior Court and was bought in by Mr. Davenport.

At the rolling mill and foundry where the Diamond Ice Company now stands, there was a young man of twenty who had begun there as an apprentice, by name Jonathan D. Weeks. Mr. Davenport believed that young Weeks would prove to be a man of great ability, and offered him a partnership. The firm became Davenport & Weeks, Rolling and Wire Mills, for the manufacture of merchant iron and wire. Mr. Weeks became one of the best known and shrewd-



THE BOARDING HOUSE.—A vestigial memory of human labor—its joys and sorrows.



SOME OF THE GEARING.

Here was mechanical power, but even that is of the Past—resting by the Stream of Time.

est men in the rolling mill business.

Davenport & Weeks acquired the privilege by deed in 1827 from Peter Scofield to perpetually flood a strip of land on the east side of the pond. They raised the old dam from ten to twelve feet and built the small lower one for the wire mill which they had recently built. They also acquired the property on both sides of Mill River, including the pond, as far north as the Simcox property just bought by Mr. Borglum, and extending south beyond the small

from the woods and flowing through the boarding house grounds emptied into the flume of the wire mill. At this tank the washing of clothes was done and the stock was watered. About ten rods north of the tank was a barn, the upper story of which was used as a granary.

They built the lower wire mill and put in annealers and what was considered modern machinery for drawing wire and making pump chain, the rake teeth wire being drawn at the upper mill, the wheel of which is still standing, but half of the



THE WHEEL OF THE FIRST ROLLING MILL.

The same wheel was afterwards in the wire mill (repaired) with new shaft, etc., but was the "same old wheel."

cemetery. The ancient highway crossed a ford just opposite the small cemetery and joined the present road a few rods west of where Mr. George Boyd has recently built a fine place. There was no highway for bridge as now just below the dam. Davenport & Weeks also built the boarding house and tenements, the stables and slaughter house on the hill just north of where the old cellar of the boarding house now remains. Opposite the boarding house on the west side of the highway, there was a wooden tank filled by a brook that ran down

dam has been swept away. The upper and lower mills were connected by a private way along the side of the lower flume and river. There was a blacksmith shop on the northwest of this way, and a carpenter's shop on the southwest. As an instance of the enterprise of Davenport & Weeks, it is told that during the gold fever of '49 they shipped around the Horn to California rake teeth rods bent to shape, packed in oats, and sold the oats for enough to pay the freight and received a large price for the rake rods.

In the boarding house presided over by Mr. and Mrs. George Caldwell, sixty men could be accommodated. There were very few married men employed. Nearly all were imported from the "Emerald Isle," good, hard working men, at wages about one-third those paid to-day. At first the upper mill was used to roll the iron to be drawn at the lower mill, but afterwards the upper mill was changed to draw larger wire, such as rake teeth, and the rolling was transferred to Still-water.

On the east side of the pond they had a sawmill where all the timber for the mills and houses at Roxbury and Still-water was sawed, being cut from their own woods.

All the soft coal used at Roxbury was imported from the Provinces and carted up by ox teams, the advantage of water power compensating for the cost of cartage, and then, too, the price of all kinds of manufactured iron was very high as compared with that of to-day.

The Mill River at Roxbury at this

time was alive with trout which would come up to the gate of the wire mill flume to be fed by the men when they ate their dinners at noon. The writer during his time has taken many a fine string of the "speckled beauties," and at one time saw one caught in the tailrace of the wire mill which tipped the platform scales at four pounds.

Stock spindle iron was rolled at Still-water, carted to Roxbury, annealed and drawn through steel plates by a rope over a wooden drum on the water wheel, quite differently from the present process which must draw it to one-hundredth of an inch.

In the boarding house, Mr. Davenport had apartments fitted up for himself and lived there. He drove to town occasionally with his fine team of black horses to visit his parents who lived in the Davenport mansion, part of which is now owned by Mechaley Brothers on Summer Street. At a party here he met the charming Hattie Chesebrough whose family had fled from the city on account



BETWEEN THE UPPER AND THE LOWER MILLS.



IN SHADOWY WATER FROM THE WIRE MILLS.

"River upper right; tailrace upper left.

of the cholera which raged there in 1832. After Miss Chesebrough had returned to her home in New York, the all "important question" was settled by letter. Mr. Davenport was such a modest bachelor of forty. The same quarters of Mr. Davenport at Roxbury thirty years afterwards Mrs. Davenport moved to on account of the draft riots in New York in 1861.

In 1835 the firm of Davenport & Weeks was merged in that of the Stillwater Company. All the rolling, etc., was done at Stillwater and the wire drawing at Roxbury.

As late as 1881 Elbert White made pump chain on his own account at the Roxbury wire mill with the machinery put in by the Stillwater Company several years before.

About thirty-five years ago the old sawmill was torn down, a new one from Georgetown, Connecticut, erected in its place and rented to Henry Kirtland, who sawed logs to order, etc. He also rented the upper mill and put in machinery for

turning handles, etc. Both have since been wrecked by time, but the east half of the dam still remains.

The Intelligence and Ingenuity of Trees.

BY DR. GEORGE M. GOULD, ITHACA, N. Y.

THE GUIDE TO NATURE has recently reproduced photographs of trees which illustrate some of the methods by which these interesting organisms overcome, obviate, or succumb to, difficulties encountered by accidents or the conditions of their growth. Such studies as that of the curious root-growth by Dorothy A. Baldwin, of "The United Oaks near the Cabin," of the photograph of an old tree by Mr. Frank P. Jewett, in late issues, are most suggestive. I do not know if the subject of the intelligence exhibited by trees has ever been adequately treated and pictorially illustrated by a competent and sympathetic student,



FIG. I—STRUCK DOWN, BUT VICTORIOUS, ALTHOUGH SADLY CRIPPLED.

but if such a work exists I have missed it, and would be grateful for a reference to it. In the meantime I offer the readers of *THE GUIDE TO NATURE* a few



FIG. II—THE STRUGGLE FOR ROOT-NOURISHMENT AND SUPPORT.

pictures which perhaps present some new features and illustrations.

The photograph of "The United Oaks near the Cabin" is one of the best examples of the ingenuity of the tree-mind I have ever seen, but I wish the reporter or photographer had described it in detail, and that he had answered some suggested questions, as, for instance:

1. How high above the ground is the Siamese-twin bond of union?
2. Is there any evidence, indication, or history, that it was made by man during the childhood of the two trees?
3. Is there any indication that it is the result of a coalescence of the two limbs—one from each tree, or,
4. Did the limb from one tree become embedded into the other trunk?
5. Is there any indication, or possible proof that the sap flows only in one direction, or in both?

I have seen the large roots of a tree a foot, at least, in diameter, pass from the top of a large boulder about six feet high, down about four or five sides of the boulder before plunging into the ground. The boulder was thus made to act as a ballast whereby the tree

gained a stability and size otherwise impossible because of the shallow ground in which the smaller roots were confined. Roots are often turned to limbs with perfect bark, because of the exigencies of circumstances. I know of one huge elm, which because of underwash, has a half dozen roots, six or more inches in diameter, running mostly above ground for from twenty to thirty feet.

One of the most astonishing and to me unique devices whereby a tree has been able to prevent a threatened tragedy is in evidence in Au Sable Chasm. A cedar over a foot in diam-

base, is wet and unhealthy, because the branch-root, supplying its own sap, has shut off the ascent of the sap from below through true roots.

Wind and shallow ground are the bitter enemies of the tree-brothers. In Fig. I is shown a most pitiful example of dire calamity, but a far more encouraging demonstration of the various kinds and methods of conquering fate. The trunk, laid low, secures an upright root-trunk after some ten feet of misery; two other root-trunks rise, support each other and cross, to get perpendicularity; an old-formed limb, below the dead top, finding itself doomed



FIG. III—THIS TREE'S MISFORTUNE DID NOT PREVENT THE FINAL FINDING OF A BASE FOR THE BUILDING OF ITS HOUSE OF LIFE.

eter grows upon a shelf of stratified rock which has crumbled away below it, leaving as the only support the roots which run into the crevices of the rock from one-fourth of the circumference. Twelve feet above the base a limb upon the opposite side, eight or more inches thick, has grown out from the tree across a chasm and has become a root, buried in the crevices of the rocks there, and forming an effective and rigid buttress or prop against any winds. That it is now a veritable root is demonstrated by the fact that the trunk immediately below where the root enters it, and extending to the

to grow groundwards escapes by sinuous curvations until it gets at last toward the sun. And several other branches get sap and strength to live from the trunk that will not die, and from roots that will live!

Studies of underwashed trees demonstrate the most marvellously ingenious struggles and successes in forefending catastrophes. Illustrations exist all along the shores of lakes and rivers.

In Fig. II, one, common enough, is shown, in which victory is wrenched out of the very jaws of defeat. How one reverences the heroic will and intelligent adaptation resident in this



FIG. IV—AFTER A NOBLE VICTORY, DEATH, AT LAST!

brother, and persistent through so many years of ill-fortune!

Fig. III shows the happy "Find" made by this underwashed brother, in the nick of time, and in dire extremity. The stone which lent itself for a base—

one feels almost grateful to it!—was plainly found after a despairing search on the tree's part, and when it had been compelled to fall downward by the loss of its original bases. What a wonderful way to reach a living equi-



FIG. V—LIVING FENCE POSTS, ONE HUNDRED FEET HIGH.



FIG. VI—THE MENIAL TASK OF A GIANT.

librium, difficult root-nourishment, and making the best of a bad bargain! Its fellow on the left succeeded too, but only half as well, incapable as it was of growing out far enough to its desired base-rock. And the four half-successes on the right side of the picture tell their own tale of pathetic trial.

Fig. IV speaks also of a splendid victory, but of death, at last.

Near Valcour, New York, about one hundred years ago were planted mile-long rows of Lombardy Poplars, which are to-day huge giants of trees, rugged, gnarled and unconquered of wind and time. About seventy-five years ago, a man with a mind which one shrinks from properly and adequately characterizing, conceived the condemnable idea of turning these majestic beings into fence-posts. He dug out of their sides and hearts deep mortice-holes, and into them he fitted and drove the ends of oak planks, two inches thick, and eight inches wide. Proud he must have been of his blasphemous trick. The planks were later cut off near the trunk, but at present it would be im-

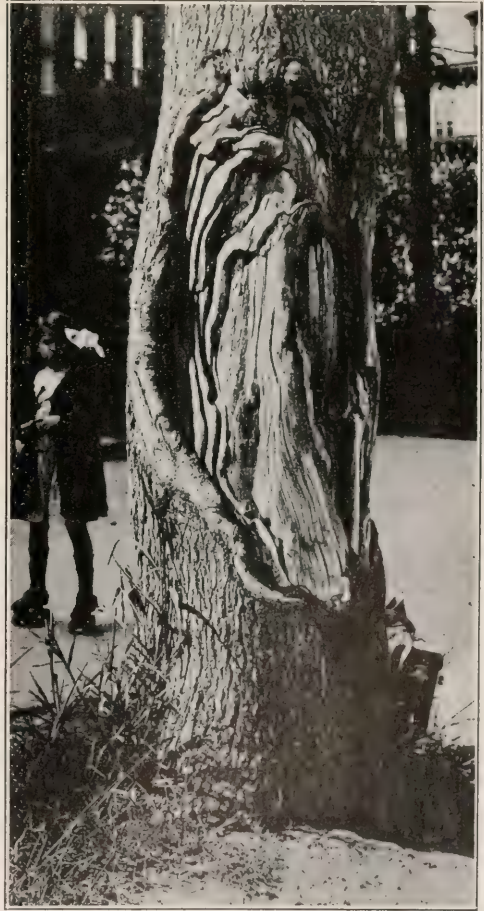
possible to draw from the trees their enemies thrust so ignominiously into their flesh. The trees seem weirdly to delight in their victory over the insults and to exhibit the conquered slaves with huge pride. The planks are sound and cannot rot themselves out or away from their sardonic conquerors (see Fig. V).

How one almost succeeded in engulfing and hiding the enemy's spear by oozing plastic material over it is shown in Fig. VI.

A City Tree's Prayer.

BY J. J. LEVISON, B. A., M. F., BROOKLYN, NEW YORK.

If city trees could speak they would offer the following prayer to their owners:



A NEGLECTED TREE.



A WELL CARE FOR TREE IN FLUSHING.
European weeping beech.

"To thee, my Master, I offer my prayer.

"Give me some food and water, some air for my roots and some light for my crown. Protect me from my numerous enemies and do not crowd me into one small space with so many of my comrades. My needs are like yours and I would not trouble you for all this. had I lived in my native home in the forest. But here I am in a foreign land, placed under artificial conditions to serve you, my Master. I am happy to serve you, to protect you from heat and cold, from disease and foul air, and to even help you financially by making your surroundings more attractive to live in. I, too, am willing to do all this like the wealthier members of my family who are fortunate enough to live under better conditions in the country or the suburbs. But I cannot do this unless you help me, and I beg you, O Master, do help me to enable me to help you. Amen."

A Mistakelet.

BY W. H. WISMAN, NEW PARIS, OHIO.

They had studied the suffixes day after day,
And practiced them through and through;
They had written examples by dozens and
scores,
Until I was sure they knew.

They had said them all over again and again,
And knew them without the book;
They had written for streamlet, "a little
stream,"
And for brooklet, "a little brook."

And then lambkin they learned was a little
lamb,
And hillock a little hill,
And eyelet they knew as a little eye,
And pellet a little pill.

One day not long after I gave them a test
To find out if yet they knew,
And asked them to write for diminutives
Examples not less than two.

But when in the evening I looked o'er their
work,
My cup of dismay was full;
For there was "pumpkin, a little pump,"
And "bullet, a little bull."



The Purple Martins will Come Back.

BY FRED HIGH, EDITOR "THE PLATFORM,"
CHICAGO, ILLINOIS.

When the president of the Standard Oil Company buys two martin houses you can rest assured that there is more than a passing interest in the purple martin. Men like Mr. Rockefeller have experts to cull out the freaks and fads and only the meritorious schemes ever reach their notice, and not half of them.

F. A. Delano, President of the Wabash Railroad, is among the friends of the martins who has one of Mr. Warren Jacobs' Mansion-Martin Houses, but to give a list of all the noted men who have bought these beauty structures would fill a page of this magazine. But a few of the prominent ones may help us to understand this article better so that we can grasp its purpose more profitably. William Dutcher, President of the National Audubon Society of Plainfield, N. J.; Chas. D. Halsey (of C. D. Halsey & Co., Bankers and Brokers), New York; Dr. Ira A. Keller (High School for Girls), Philadelphia; Miss Cora A. Smith (for use of the biological department, Erie, Pa., High School); P. M. Sharples (Sharples Separator Co.), West Chester, Pa.; D. G. Trench, Oak Park, Ill. But why go on? The list before me shows that these bird houses are shipped to New England, Wisconsin, Michigan and as far West as the Dakotas.

This article is not written as a boost for Mr. Jacobs. Those who care to look into the commercial side of this beautiful study will find that all such information can be had by communicating with The Jacobs' Martin-House Factory, Waynesburg, Pa. My purpose is one along a different line entirely.

The Saturday Evening Post is not

given to boosting private individuals, so it was an extraordinary event when that numerous magazine devoted a half-page article headed "Bringing Back the Birds," a story of the achievements of Mr. Jacobs and his colony of martins. As a boy, young Jacobs had played around a martin box and when he grew up his mind often went back in the pleasant memories of those busy, interesting neighbors. He conceived the notion that even departed birds would "come back" to their old haunts, in spite of steam whistles, quarry blasts and the general racket of forge and factory if given an intelligent welcome, so in 1896 he built a bird-house, designed with a view of attracting martins. This mansion contained twenty rooms and great was his delight when he discovered an old scout flying around on an investigation tour, and as he saw "to let" on every side, he was not long in deciding to move in. He hastened away to lead his good



WM. ROCKEFELLER'S BIRD HOUSE.

mate to their new home. The next day Mrs. Martin inspected every room in the house while Mr. Martin sat on the chimney of the mansion looking for neighbors; and in less than a week there were eight couples in Jacobsville, as the martins call it. At that



J. WARREN JACOBS.

time there were less than two dozen martins in Waynesburg. Last year 1,200 of them left there about the 28th of August for their flight south to the West Indies, Central and South America.

On September 17, 1908, 25,000 of these real aviators were gathered from all parts of Pennsylvania, West Virginia, Ohio, and states still farther north and they halted for the night at New Martinsville, W. Va., an Ohio river town about forty miles south of Wheeling, which, if it wasn't named in their honor deserved to be, at any rate they took the city.

The first thing that attracts the notice of strangers when they get off the wiggle-waggle choo-choo cars at Waynesburg is one of Warren Jacobs' martin houses that stands right in the center of the Depot Park.

Why do people all over the country order these expensive martin houses? Why do noted fanciers, bankers, educators and home builders want these

martins to colonize near their home? A little study of the daily diet of the martin will probably aid in this. Mr. Jacobs says: "The Purple Martin is one of the most beneficial birds, living entirely upon winged insects. Thousands of these pests are captured daily, in the vicinity of a thriving colony. The further fact that the young remain in the nest rooms about four weeks, to be fed by their parents, increases this bird's value as an insect destroyer." On a summer's evening it is an interesting sight to watch hundreds of these birds, darting, wheeling, soaring and gliding to and fro, high in the air in pursuit of all forms of winged bugs and beetles.

Mr. Jacobs says: "It undoubtedly requires millions of insects to feed an ordinary brood of martins and sustain them and their parents until the time arrives, late in August, for them to take their departure." The martin is the friend of man as man is the friend of the martin. The noble redman of the forest was the first to build a rude house for him and it was he who started the evolution that has changed the martin's home from a hollow tree to a house built after all the modern plans of architecture.

The martin is one of the most industrious birds that is to be found anywhere. He does not belong to any labor union. The cry for an eight-hour day has never reached his ears, in fact, he works sixteen hours a day for a bare living. He does not dress extravagantly, wearing on all occasions the same somber suit, the conventional black, as the village editor describes the "duds" worn by the bridegroom.

It is conceded by all who are in a position to know that Mr. Jacobs knows more about martins and their domestic bliss than any man living. His grand gold medal, the highest award given by the Louisiana Purchase Exposition at St. Louis in 1904 was not awarded on store eggs. He holds a membership in the greatest scientific societies, including the one at which King George of England is at the head, the Royal Society of London.

Is there a market for martin boxes? Waynesburg is a sample of what can



A VARIETY OF MARTIN HOUSES.—In the center is Mr. Jacob's home; also telegraph pole with birds on wires near his home.

be done in the way of extending that market. There are more than one hundred fine martin houses in that town. Study into almost any great business and you will soon get back to a point where that business started, as by magic, to prosper—that point is generally where the right man got into the right place in the sales department or at the publicity helm. Dr. Jane gave headache prescriptions for forty years, but the headache powder business began when his daughter married a salesman. Dr. Hess had his sick chicken hospital over a livery stable at Ashland, Ohio, until Clark, the salesman and advertising expert married Mrs. Hess' sister, but why go on?

Mr. Jacobs says: "The purple martin is to-day at the threshold of a stimulating and prosperous advance, which during the next few years will spread its progeny over territory where it has not been seen for years. A large amount of correspondence during past years shows a wide-spread desire and longing to re-establish the martin in communities from which the birds long ago departed."

American Birds Good Enough for Us.

A lot of crazy people are clamoring for the importation of some English skylarks. It is strange that some people never learn by experience. We have imported two birds from England which have proven veritable nuisances, though both were entirely innocuous in their native land. The skylark is a harmless bird and a beautiful singer in England, but God only knows what it would turn out to be if introduced here. Judging from past experiences we might expect it to insist on nesting in our houses, on our pianos, book cases, lace curtains or even in the women's hair.

It is always a safe guess to let well enough alone, and if the people who are clamoring for skylarks would exert themselves to take care of our native song birds their energies would be much more effectively placed than now. —*Shield's Magazine.*

I enjoy your magazine very much.—
Mrs. Robert Milde, Lewiston, Minn.



REMARKABLY REALISTIC TAXIDERMV.

The duck hawk on the palisades. Background by Hobart Nichols. One of the several "Habitat Groups" of North American birds in the American Museum of Natural History, New York City. Cut by courtesy of the Museum.



When the Corn Was Learning How.

BY EDWARD F. BIGELOW, ARCADIA: SOUND BEACH, CONNECTICUT.

Corn or *Zea mays* is merely an overgrown grass or, as the botanist would put it, a member of the family *Gramineae* and is closely related to such grasses as wheat, and indeed to those more abundant forms that one sees almost everywhere by the roadside. In these grasses, the seed is perfected in the head, a method that answers well for those that do not develop a very heavy weight of seed. That the corn is a grass is evident to the botanist, as he examines in detail the structure of the plant and evident to the observing

farmer, who occasionally finds the seed growing and becoming perfected on the tassel. If he is careless he thinks of it as a freak of nature; if he is thoughtful, he sees, by means of this circumstantial evidence, a portion of the path by which this grass has come to its final development. It is comparable to the idiosyncratic pronunciations of the cultured person who has spent his early days in an uncultured home with uncultured people; we all know that the expert can tell by his accent from what part of the country the person, though a complete stranger, has come. So there are little peculiarities noticeable here and there in this corn grass that reveals a part of the



CORN GROWING IN THE HEAD (TASSEL) WITH ITS "SILK."



A CROSS AND LENGTHWISE SECTION OF AN EAR OF CORN WHERE EACH KERNEL HAS ITS OWN HUSK.

This ear has the "modern" location on the stalk, but retains and intensifies its tassel habit, of each kernel covered, as shown in the tassel photograph on the previous page.

plant's history. It seems evident that the corn at one time developed its seeds in what we now know as the tassel. The seeds were covered practically in the same way as the seeds of wheat are covered in the head. The plant seemed to learn that before it could develop a great wealth of seed it must seek some other and stronger place for its support, and that place was found. Like the person that came from the uncultured home it for a long time bore all its former peculiarities. In other words, it took a long time for the corn to learn that it would be economy to put its spathe-like bracts in what we now know as the husks rather than to continue the old method and cover each kernel separately. In doing this, or rather in learning the lesson of its modern home, the reversions of its former method are, indeed, ludicrous, because the corn is proverbially a plant that sports freely. It is this characteristic that makes it so interesting. One never knows what it will do next be-

cause it is such a bundle of diverse tendencies. Some persons have only one line of thought; they always act in a certain characteristic way, while others whom we call erratic have a variety of characteristics, and we never know what will be their next mood. Such people are interesting, vivacious and versatile. Corn has a similar mingling of tendencies, and we never know what will happen next.

Imagine a young man, who in his early days has been known as a gawky, trying to become accustomed to the courtesies and modern fashionable manners of a city ballroom. How interesting are his performances and his mistakes and the ways in which he tries to hide the rusticity of the past beneath the culture of the present. So it is with corn. It makes one almost laugh to see it stand between the tassel of the past with its attempt to grow a tiny, wheat-like kernel with each bract, and its ambitious longing for the time when it shall grow all its kernels free on a central ear covered by spathe-like husks. We find several of the steps in the gradation of development as we



A HUSK FOR EACH KERNEL.

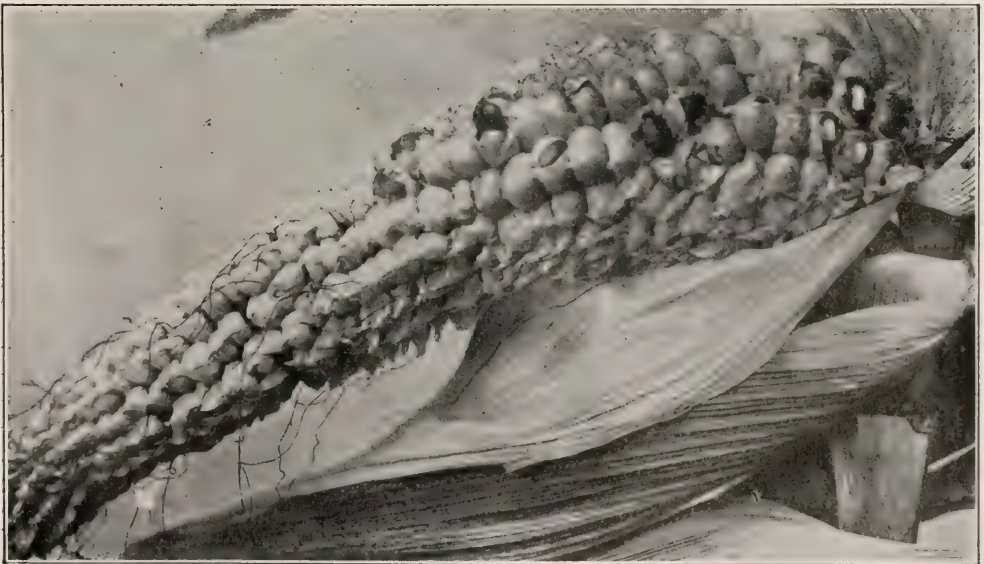
Taken from the ear pictured in the previous column.
A husk opened at lower right and left to show the single kernel.



LESS HIGHLY DEVELOPED INDIVIDUAL HUSKS.

see several of the steps in the culture and in the development of personal peculiarities. Some people strongly show the heritage of their lowly birth, and others are equal to the highest culture. In the latter, one must look closely to see that they still have some of the traits of their bumpkin days. So it is with these kernels of corn in their efforts to advance into the higher development. Some are so com-

pletely obsessed by the memories of the tassel of the past that their efforts to be a civilized ear of corn are to the observer laughable and almost painful. Some of the pupils of The Agassiz Association, and of its new experimental home known as Arcadia, at Sound Beach, have been experimenting along this line. One of these is Miss Olivia Ford, who has succeeded, in a remarkable manner, in producing corn



SO THIN OR VESTIGIAL HUSKS THAT THEY SEEM ALMOST "CIVILIZED" AND "CULTURED."

The individual covering husks are less, while the husks covering the entire ear are more developed.

that shows many of the steps in this transformation, including the ludicrous performance of certain kernels that have resumed the habits of the past. The more, it seems, that they have tried to show what modern corn should be, the louder have they told us the story of those tassel days, for they are on the side of the stalk and their coverings are those of tassel enlarged. Miss Ford has succeeded in producing corn almost of the modern, highly developed form with a vestige of the covering which the single kernel had when it was in

the wheat-like form, and she has also succeeded in growing corn which shows that the more it has tried to be modern, the more it has betrayed the bumpkinism of its past. In the accompanying photographs are visible the various steps in the corn gathered and sent to Arcadia from the few hills grown by Miss Ford. She has performed the task requested of her in an excellent manner. The seeds with full instructions were given to her in March, and in October she returned the result of her season's labors.



Catching "Flies" by Tons a Lost Industry.

When the government of Mexico decided to drain Lake Texcoco, just east of Mexico City, in order to lessen danger of floods during the rainy season, and also to get at the rich soda deposits in the bed of the lake, it sounded the doom of one of the queerest and most ancient industries in the world, that of catching flies for market.

Since the days of the Aztec lords of Mexico, a small band of natives has made a comfortable living out of the business of supplying the canaries and other pet birds and fine poultry of the United States and Mexico with the delicacy of dry, salted flies.

Now the lake is drying up, the flies have disappeared, the birds are to go hungry and the fly-catchers have abandoned their pleasant vocation for the drudgery of digging soda from the bottom of a smelly lake.

Catching flies for market on the shores of Lake Texcoco has been a profitable industry since the days of Aztecs. Until recent years the annual production of dried insects was meas-

ured in tons, and until this year was sufficient to afford a means of livelihood to a small colony of native fly-catchers.

These market flies are a little smaller than the ordinary house fly. Preserved in the natural salts, they were found to be an excellent food for caged birds and chickens, and hundreds of sacks were shipped annually to bird dealers in the United States and Germany.

The insects are caught in nets as they swarm near the lake's surface, killed by drowning in the water and immediately spread out on sheets to dry. After this simple curing process they are sacked up and are then ready for market.

Some are used in Mexico, but the excellent demand which has grown up for them in other countries within the last few years has greatly increased the price and lessened the local demand.

During 1909 more than \$10,000 worth were shipped to Europe alone.

The profession of fly catching and fly preserving has been handed down from father to son in a few families who have held a monopoly on the industry

since the days of Netzahualcoyoti, when that monarch signed a treaty with the Casique Chimalpopoca of Tenochtitlan, whereby a number of Tencans received a concession to gather flies in the former's realm to feed the sacred quetzals in the great teocalli.—New York Newspaper.

Sent by Spratt's Patent, Ltd.

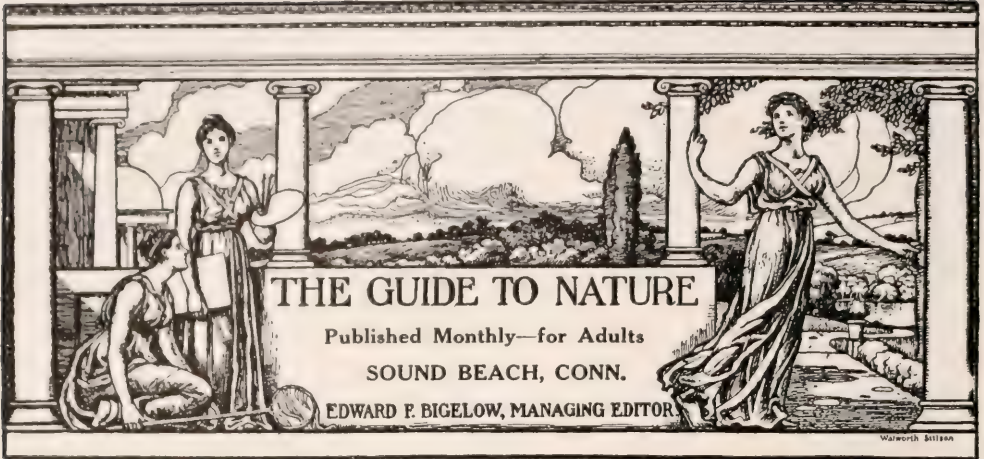
The newspaper clipping, which is returned herewith, does not refer to true flies, but to certain little Heterop-

terous insects known as water-boatmen. The eggs of two Mexican species, namely *Corisa mercenaria* and *C. femorata*, were laid in enormous numbers in the lakes near the City of Mexico, and were made into cakes with meal to be eaten by the Indians. The adult insects and their eggs were imported into England by the ton as food for game and song birds, poultry and fish.—L. O. HOWARD, Chief of Bureau of Entomology, Washington, D.C.



ANOTHER BEE STUNT.

Bees handled in a cage by an operator wearing only a bathing suit. William H. Crowson demonstrating bees at the tri-state fair at Memphis, Tennessee.
Cut by courtesy of "Gleanings in Bee Culture."



Has Lived Near to Nature.

Though now more than one hundred years of age, Captain William H. Davidson every morning takes a long walk before breakfast through fields and forests and along picturesque roads, in communion with nature.

On November 26, 1910, his comrades and friends at The Soldiers' Home at Noroton, Connecticut, celebrated his one hundredth birthday. He read without the aid of glasses an extended selection from the Gospel of St. John, beginning, "Let not your heart be troubled." He gave an account of his life, telling that he was born in South Dover, Dutchess County, New York; was educated at the Bateman

Academy, and later at the Theological Seminary at Poughkeepsie. He was a missionary in the Sandwich Islands, and a soldier in the Civil War. He has traveled in many foreign lands.

He has always been especially fond of walking. "The Daily Advocate" of Stamford says:

"Only three years ago, the Captain was a familiar figure on his early morning walks. He would think nothing of walking around the square to Glenbrook, at a good brisk stride, before breakfast. Two years ago on Memorial Day, he marched with the other soldiers to the cemetery, and helped decorate the graves of his former comrades, and he stood the march as well as any."



ONE HUNDRED YEARS OLD, HE PREACHED A SERMON, HIMSELF THE BEST TEXT AND SERMON THAT COULD BE PREACHED ON "NEARNESS TO NATURE."

On his right is the youngest member of his regiment.



"RETROSPECT AND PROSPECT."

The oldest and the youngest (Almira J. Hoyt) at
The Soldiers' Home.

Don't Worry—Work.

The above heading is a fitting motto for all our readers to tie to. Those who worry much have but little time for anything else. The time so spent is wasted, for along with worry goes a spirit of pessimism, discouragement, downheartedness, and usually a lack of ambition.

Where worry constantly enters into the routine of daily life, the slough of despondency broadens daily unless filled at once with sunshine before it grows broad and deep beyond all hope of filling.

Worry prevents effective work no matter what the occupation may be. If we are given to introspection and worry and allow this habit to grow, our days of usefulness will be shortened and we will prove of little aid to those about us.

In the first instance it is useless to worry because we can correct the trouble in some way and then there will be nothing to worry about. Where we can help matters the thing to do is to get busy and remove the cause, as we are

wasting valuable time in concerning ourselves about those matters over which we have no control.

If we cannot change conditions that cannot be helped, it is manifestly useless to worry about them. It, therefore, rests with ourselves to eliminate this kind of worry, for no amount of anxiety can alter the situation.

It is therefore only the first condition of things about which we need to concern ourselves. "Know thyself" is a pretty good axiom to cling to. Where people have the worry habit, the thing for them to do is to turn the search light direct on themselves and try and determine where the fault lies. It may not be possible to cure the worry habit in a day or even longer, but worrying one's self into a frenzied condition of mind simply means unarming one's self to grapple with the perplexities of life.

The one who is worrying should find some deviation from his or her routine of daily duties and in some different work find relief. A hobby is a good thing to tie to, if it is the right kind of a hobby. Reading helpful literature is a good panacea. Attention to the family and to helping others, or the doing of something that will take the mind off the things that are perplexing, is the safe way out.

Strive to cultivate a cheerful disposition. Spend the spare time among people who are cheerful. We should keep out the rays of worry that creep into the wellsprings of the heart and let in the sunshine of optimism. If an opportunity passes do not worry about it; look for another one.

Work kills worry. Just try it once and see if it doesn't. Life is short at the most: we should not shorten it by worry. We should aim to eliminate, as far as possible, those things that cause worry. We should arm ourselves by keeping in good physical condition to better meet the aggravations of life, ever remembering that there will come across our pathway of life things that are not to our liking. We should be philosophical. If we lose in one place grab hold somewhere else. Be an optimist, fill your soul with faith and hope, look at the bright side and shun the dark. "Don't worry—work."—*Successful Farming*.

"Save Us from the Falsity."

Stamford, Conn.

To the Editor:

In reading Feuchtersleben's "Health and Suggestion" the other day I came across a passage regarding Nature Study which possibly you may not have come across. I copy it and send it to you for what it is worth. Such strong words from a man who, a half century ago, was a leader in German thought, some time professor in medicine in the University of Vienna, and who died in 1849, may be of some use in your missionary work.

Very sincerely yours,
CHAS. MORRIS ADDISON.

And what can save us from the falsity that surrounds us on all sides? A deep joy in nature. The study of nature produces an atmosphere in which our deepest and subtlest selves can be born and developed. If the tender plant which is our spirit shrivels and sere in the hot-house of society, transplant it to an austere wilderness and it will revive. Even the Epicurean who has tasted every joy must finally confess that those joys are the highest which do not trouble the peace of the soul. And these joys are two: the contemplation of the soul and the contemplation of nature. Nor is there any fact of loftier and deeper significance than this: that when the greatness and loveliness of nature refresh the senses, the spirit is elevated and enlarged. You may say what you please in favor of society. Assuredly it teaches man his duty and there is nothing higher than that. But only solitude will give him content. The eye that gazes upon the immeasurable blue of the heaven or contemplates the glories of the manifold earth, loses sight of the mean anxieties that harass man in the market-place. The thoughts of nature are all lofty, and man's contemplations may become like them. The *ego* becomes aware of its own littleness and yet, with thoughts fixed on infinity, finds its happiness in the eternal harmony of things. It learns justice of nature's changeless laws—nature which loves even when it destroys, in

which alone are truth, repose and health. All sane spirits who have given man the fruits of a pregnant solitude, have flourished amid such feelings and will ever think of nature with a deep reverence. That Lessing had no feeling for nature is a myth that grew out of a foolish paradox. It is among naturalists that you will find those scholars who attain a great and serene old age. As the intimate study of nature, if it is to prove fruitful, necessitates a certain childlikeness of attitude (such as we find in Howard and Novalis)—even so it creates this quality in those who pursue it and gives them the boon of a second youth.

He Says, "There's Nothing In It."

We have found him. Among the many words of commendation that have come to us, some of which we have printed from time to time, there has arrived one unfavorable criticism. The critic, alas, lives near home in Sound Beach. He says that he has carefully examined several copies of *THE GUIDE TO NATURE* (sent him from time to time as samples) and has come to the conclusion that "the magazine is no good—there's nothing in it."

Regretfully, sorrowfully—and yet, as always, frankly—we are forced to admit that the criticism is just and true—for him.

Music-Loving Animals.

BY HARRIET E. WILSON (C. M. NO. 2101),
STORMSTOWN, PENNSYLVANIA.

As a company of ladies were talking about their past experiences, the minister came home with a deer. The sight of the animal turned the talk toward deer and other wild and domestic creatures. One of the company told of her brother's pet deer which finally ran wild but occasionally came to seem them. She and her sister were singing together one day when the deer came half through the door and listened to their voices, apparently with pleasure, for when they stopped singing he ran away.

Mr. N., who has a deer park, calls the deer by playing on a mouth organ. They will all come around him; they

appear to be specially fond of the sound of a mouth organ.

Rabbits may be attracted by a whistle. A hunter of my acquaintance, if he has no dog when he sees a rabbit, will whistle and the rabbit will stop and stand erect on its hind feet.

When quite young I read and sang to the geese. A spring of water came from under a spreading maple tree and a seat made there of rocks was my favorite place for reading, particularly on Sunday afternoons, while the geese swam in the water and quacked. When I read aloud or sung they would stop, stay still and listen. When I stopped they would cry, "Quack! quack!" to express their pleasure or to applaud, maybe both.

How the Hogs Obtain Milk.

Most farmers have a saying that hogs will milk cows, but by many people this is regarded as a story on a par with that of snakes that crawl into the spring house and drink the milk. But here is conclusive photographic proof that hogs do really milk cows, and that

Iowa. He writes that he does not know who took the picture, as it came to his office while the "Farmer" was under the management of a former editor. As a rural scene it is a novelty, and as such we publish it.

"No Hunting Aloud."

Hunters who have taken a post-graduate course in the school of applied silence are welcome on the Job Zile farm at Clinton, near Caldwell, N. J., but those with silencers on their firearms will be preferred of all men. Here is the invitation to the noiseless and speechless variety; it was posted yesterday by the owner of the farm:

HUNTERS, BEWARE!

No hunting aloud on this farm.

By order of the owner.

JOB ZILE.

A neighbor saw Job tacking up the sign and told him the word "aloud" should be spelled "allowed."

"No, that's all right jest as 'tis," said



DIRECT FROM NATURE THE BEST METHOD!
How to avoid "skimmed" milk and preservative chemicals.

the performers seem to enjoy it. Furthermore the cows appear to have become accustomed to this kind of milker. This photograph was sent to us by Alson Secor, Associate Editor of "Successful Farming," Des Moines,

Job. "What I want to stop is this darn banging of guns all over the place when the hunting season is on. Let 'em hunt all they're a mind to, but if they go to making any noise about it, I'll have 'em 'rested."—*New York World*.

CORRESPONDENCE AND INFORMATION

An Observation of a Meteor.

Bowen, Illinois.

To the Editor:

I will try to write you a description of a meteor that I saw pass over Hancock County, Illinois, on the night of May 14, 1905, at 11.30 p. m., as I was walking through the fields. There was no moon. Suddenly the country became as bright as at noonday. On looking up to learn the cause, I saw a bright meteor coming from the southwest and crossing the sky to the northeast. Its light was so brilliant that I could see objects half a mile away and more. It moved very swiftly with a loud hissing sound, and left behind it a train of deep blue fire. The meteor itself was deep blue. It seemed to be as large as the full moon, and to span the arch of the heavens. When it

passed the zenith and was about two-thirds down the eastern horizon it seemed to pause for a moment. Then I heard an explosion that made the earth and sky tremble as the meteor burst into fragments. The whole sky seemed to vibrate for several seconds. It was a beautiful sight, and one that filled me with wonder and admiration.

OLIVER SHANKS.

The Split Rock and Curious Willow.

Stamford, Conn.

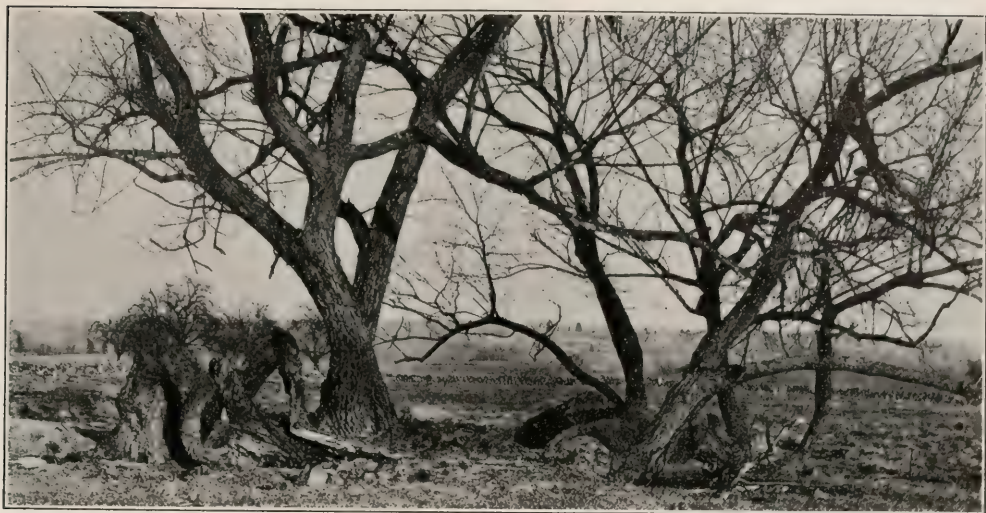
To the Editor:

I was very much interested in that story (in your November number) about a split rock.

The story reminded me of a picture I once took of a split rock or, to be more exact, a split boulder, so I hunted



THE SPLIT BOULDER NEAR WILTON.



THE WILLOW THAT DIDN'T GIVE UP.

up the plate and I enclose you a photograph of it. It lies in a field beside the road just above Wilton, and I think it is a very interesting object. Where did it come from? What mighty convulsion of nature broke it in two? I think it was probably deposited there by the melting ice of the glacial period, but how it ever was broken I cannot imagine, for it is an immense stone, as large as a small house, and the force required to split it from top to bottom must have been tremendous; but there it lies, in two pieces, and there it will continue to lie through the ages unless man attacks it with dynamite, for it is so huge nothing else would have any effect upon it.

I also enclose a picture of a very curious willow which stands in a lot on the north side of Westover Road (or at least it was there several years ago when I took the picture). From the way it looks I should say it had been broken down several times when it was young, but instead of giving up (as some people do who meet reverses) it started over again and the picture shows the result—broken but not overwhelmed.

Yours truly,
A. L. EMBREE.

Encouraging to an editing naturalist!

Two Plants from One Seed.

Concord, New Hampshire.

To the Editor:

If I may be allowed to, I have a question I would like to ask through *THE GUIDE TO NATURE*.

Last spring I planted some seeds from a dwarf orange. When they came up I found three seeds that produced two plants each. I am sure that the two plants came from the same seed as the outside of the seed stuck to the seed leaves and had to be pulled off. One of the plants was larger than the other and continues to keep ahead of it. Thought I would like to know whether this is a freak or if it is natural for the orange to produce in that way.

Yours truly,
SHERMAN E. PHILLIPS.

With reference to Mr. Sherman E. Phillips' inquiry regarding the two plants produced from one seed, which has been referred to me by Professor F. V. Coville of the Office of Taxonomic Investigations, I would say that it very often happens that seeds of citrus fruits produce more than one seedling. As a matter of fact, instances have been noted where a single seed has produced as many as thirteen seedlings.—*Physiologist in Charge, Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C.*

THE CAMERA

Try Photographing the Cat.

When you can find nothing else to do with your camera, when you no longer care to visit the woods or the fields or the marshes for some of the smaller objects to be found there, when you have taken the portraits of your friends, brothers and sisters, uncles, cousins and aunts; when the dog has posed until he is tired of it, try photographing a cat.

ever will be formulated. Everything, aside from the truly classic, may be improved. Of course you will naturally begin with the cat in the act of taking her usual meal, or with two interviewing each other, and in various similar cat-like actions. Perhaps all this is easy. But try it and see. When you have done these things well, have the cat open her mouth and speak to you. But do not



JUST FOR A STARTER—YET NOT SO EASY AS IT MAY SEEM.

But perhaps you will say, "That is the simplest of all; long months ago I passed the cat stage in my photographic career. Now I want to get things in nature that are really worth while."

But hold on a minute; even the simplest thing can be done a little better than it has yet been done. Some one has said that the classic is only general information expressed in a form more nearly perfect than any in which it has been or

prolong the process or she will get so tired, or be so impressed by the ludicrousness of the situation that she will open her mouth to its greatest extent. If, however, you want to give her a jollification and to reward her for her patience, hand her a good bottle of highball and see how she will hold it and gaze at it and lovingly draw it to herself and take a prolonged drink.

"But hold on. Do you really mean this?



A LITTLE PRACTICE ON SIDE LINES.

We thought that photographing a cat is an easy matter, but how can we induce her to hold a bottle, stand on her hind legs, draw the bottle to her and take a drink?"

I don't know. Mr. John Breen of Bridgeport, Connecticut, knows, but will not tell. Therefore, I suggest to our readers that they with their camera return to the ordinary, plebian photography of the cat, and if they proceed far enough and with patience enough it is possible

that they may discover Mr. Breen's method of inducing the cat to perform some of the astonishing "stunts" shown in the accompanying pictures. Mr. Breen kindly lets us have the photographs but discreetly declines to tell how he made the cat stand upright and hold the bottle of, I suppose, catnip tea.

Of course, you are a naturalist and are dealing only with a naturalist's cat. I do not mean to say that yawning, laughing, talking and a prolonged nip at the



A CAT LAUGH.

Is that all you are going to do? Even a cat can do better.

"OH, I'M TIRED OF THIS!"

"Now turn over the page and we will do something worth while."



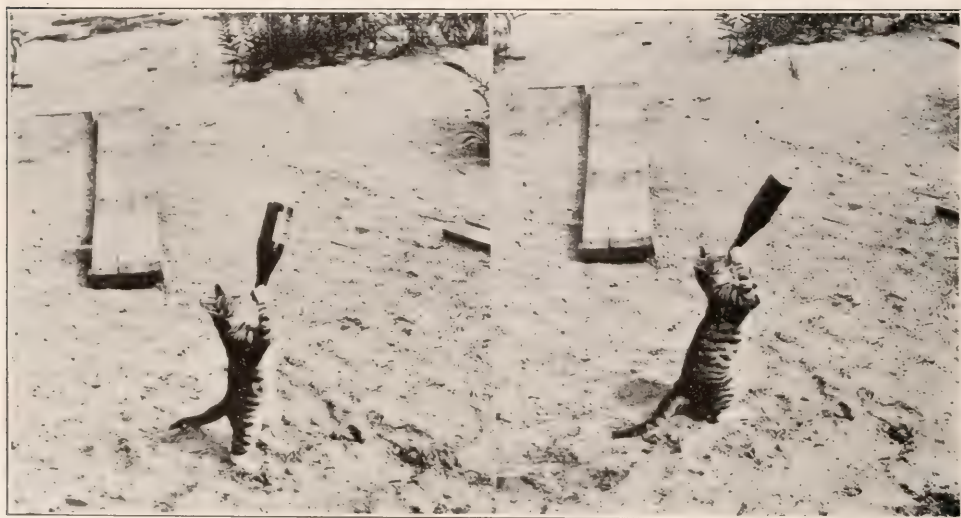
"HAND HER YOUR FIELD GLASSES."

"JUST AS YOU DO ON A LONG TRAMP."

bottle are characteristics of naturalists, but they evidently are, in this case, of the naturalist's cats. The cat, however, to be true to the instinct of her master, must be a tramp, at least temporarily, for where is the naturalist who is not happy at the thought of a tramp even if he does not drink out of the proverbial old tomato can.

Of course your cat will be a lover of lenses; she will like to gaze into infinity, and to give her scope for the exercise of her ability along that line, hand her

your field glasses and see how gracefully she will balance them on one paw, steady them with the other and will gaze learnedly at some distant constellation, available to her in the daytime because of her light-gathering eyes. Should you encounter any obstacle in inducing her to hold the field glasses, to focus them and to gaze into them studiously, you must look at the accompanying photograph of Mr. Breen's cat in the act, scratch your head, walk about the yard four or five times and try again. You will be divided



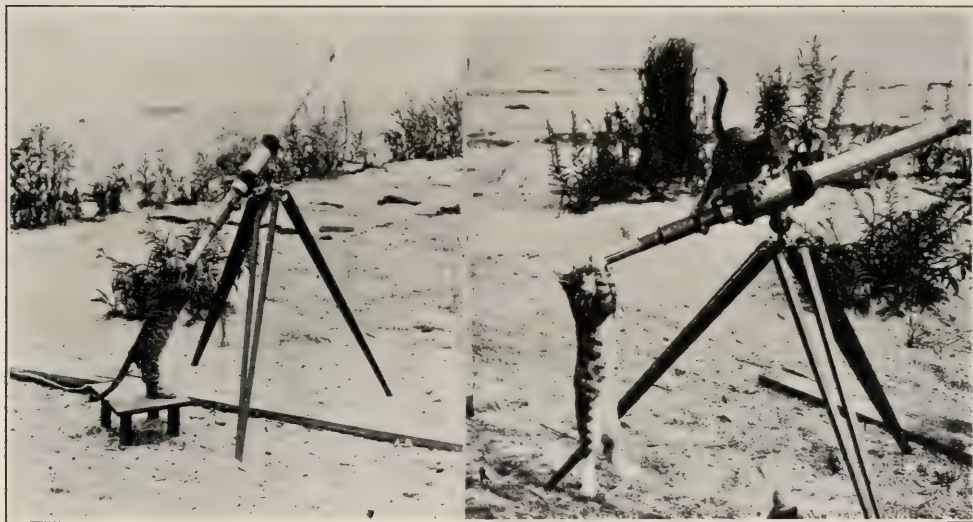
TENDERLY, LOVINGLY GAZE ON IT.

DRAW IT NEARER AND TAKE A PRO-
LONGED NIP—CATNIP TEA?

in your ideas between wondering how the cat happened to be so studious and how Mr. Breen came to be so successful. We who are amateur astronomers soon advance beyond the field glass stage. It is our dream, perhaps, for years to own a telescope, even a small one, and at last comes the happy day. From your own experience imagine the cat's joy when she takes the instrument to the beach and gazes, not at the ocean of water, but at the ocean of space. At first the tele-

even a cat friend, if you do not utilize him? What is the use of a friend, asks Cowper, if he can't carry one end of the bag? We all are selfish and get friends for our own use the same as we get anything else that gives us pleasure and comfort. There is no sense in having friendly cats to assist you at the telescope unless they give you joy.

Perhaps in some future number we will tell you more of these cats because they still live, still take sips from the



"HOW EASY FOR HER TO BRING A STOOL FROM THE SITTING ROOM."

A FRIENDLY CAT BECOMES THE BALANCING WEIGHT.

scope is beyond her powers. She needs to exercise patience and ingenuity to become skillful. She thinks that the tripod is a little too tall, but how easy for her to bring a stool from the sitting room and lift herself so high that she may see the rings of Saturn!

But what is the use of gazing only at the stars. Invite a friendly cat to assist in these astronomical investigations, and if you are skillful and the cat wise you will see how the astronomical cat will utilize her friend. The telescope may need a balancing weight, and this defect is easily remedied when the cat friend mounts the tripod and sways to and fro to get an even and steady balance just as you are looking at the four moons of Jupiter. For what is the use of a friend,

bottle of catnip tea, still study the passing boats on Long Island Sound by the aid of a field glass, still gaze into ethereal depths, and, what is more than all that, still puzzle our photographers to know how the thing is done.

One of my friends to whom I have shown these pictures, and who helps me by carrying one end of the bag, says that, although he is not a photographer, he can explain. The late Dr. Elliot Coues, when asked with what he stuffed his birds, said, "With anything except brickbats." Mr. Breen's cats are stuffed, maybe not with brickbats, but surely with cotton batting and excelsior.

But he's wrong; the cats are alive, and—well, how did they do it?



Copyright, 1909, by H. E. Hill, Fort Pierce, Florida.
 REMARKABLE PHOTOGRAPH OF LIGHTNING.
 Courtesy of "American Photography," Boston.

Photography in its Infancy and its Old Age.

IN ITS INFANCY.

It may sound strange to speak of photography as in its infancy, when one takes into consideration the large number of firms that manufacture photographic apparatus, and the many stores that deal in photographic supplies in every city and village. It is not the apparatus nor the method that is in its infancy, but in the conduct back of these materials and methods. One would suppose, with all the fine anastigmat lenses so liberally advertised and so attractively displayed in the show cases of these photographic stores, that choice photographs are an everyday occurrence, but the facts of the case are different. The really fine, clear, sharp photograph is a rare thing. Not one photograph in two hundred submitted to almost any magazine, is adapted to the making of a good cut. Comparatively few photographers are

getting from their apparatus all its possibilities, because the work is too carelessly and too ignorantly done. Photographing is taking a picture of something, and the first essential is, not to take the picture, but to understand the something.

Can you imagine a sportsman who, starting out with his gun and dog, walks down the street and through the fields, firing promiscuously at everything? How much game would he bring home that would be found useful in the family pantry or salable in the local market? Yet this method of firing in every direction at almost everything is the way in which most amateurs use their camera. The first essential in photography is to seek diligently and then intelligently to bag the game that is really worth while.

Or, to change the metaphor, suppose a newspaper editor should engage a reporter, and that reporter should go in the street and write up all sorts of

character suggestion a la Dickens, how much of the stuff would the editor accept and print. Very little of it would be worth putting in type.

Or again to change the figure of speech, suppose a stenographer were engaged to assist in correspondence, but instead of taking notes that are really needed, and writing letters that are for a purpose, should record the ordinary conversation of the clerks in the office or of the visitors. How much of such material do you think would, for the purposes of business, be worth the postage, or even the paper on which it is written? Try such bagging of photographic game by shooting in the air and at thirty-two points of the compass; try to do reportorial work by that method; or try to take stenographic notes in such a haphazard manner, and see how many dollars and cents it will bring in, or how much the results will be.

"But who in the name of common sense," exclaims the camerist, "does hunting, reporting or writing in that manner! Nobody. For the simple reason that sportsman, reporter and stenographer are supposed to be possessed of fairly good common sense of which the average camerist seems to be ut-



DIFFERING POINTS OF VIEW IN "BEFORE AND AFTER SUNSET."

The name of the photographer has been lost. Kindly send and credit will be given in the next number.



ORDINARY "SNAP SHOTS," BUT REALLY WORTH WHILE, BECAUSE THEY TELL A GOOD STORY OF THE SNOW IN TANGLED THICKETS.

Photographed by Harry M. Wilson, Akron, Ohio.

terly devoid. The camerist fires in every direction; he records beauty everywhere; he makes notes of everything that comes before him, and then wonders why the magazine editor, to whom he sends the results does not reward him with a liberal check.

The first essentials of photography are brains, common sense, and a good aim. A 'nose for news' too is desirable, while the skill to reproduce only important facts is not to be despised.

A photograph must not only be well taken and beautiful, but it must convey a definite idea. Because ideas are lacking, most of the everyday photography is like a baby yet in its infancy; it needs to grow in mental capacity; it must develop until it can put some thought into the field in which it will become active, and it must grow until it knows how best to use the ability which it may acquire and which is really worth while.

IN ITS OLD AGE.

If I may judge from the portraits without nose or ears and with one eye faded out; the trees and the boats and the teams that are lost in the fog of improper focusing, I judge that photography has grown so old as to be completely worn out. Portraits are publish-

ed showing one ear, and perhaps part of the forehead with a glint of light on the tip of the nose, and are called high art. I call it photography grown out of usefulness in the old age of the impressionistic school. Such work would make a child look like an old woman, a boy like an old man; and worse than that it at times leaves only the ghost of a body that must have gone before. In this impressionistic school things are worn out, faded away like the memories of a half-forgotten past; they are foolish; they dribble; they are in the second childhood; they are the old age of the art.

But you claim, "Has not old age a right to exist?" Yes, the old age of dim memories of the camera have a place on the shelf of some photographic museum, but never in the editorial sanctum of any magazine other than one devoted to the interests of old-age cranks.

* * * *

What is needed in photography is not the drooling baby nor the mind-weakened dotard, but the stalwart manhood and womanhood in the active part of photographic life when the man or the woman can do something worth

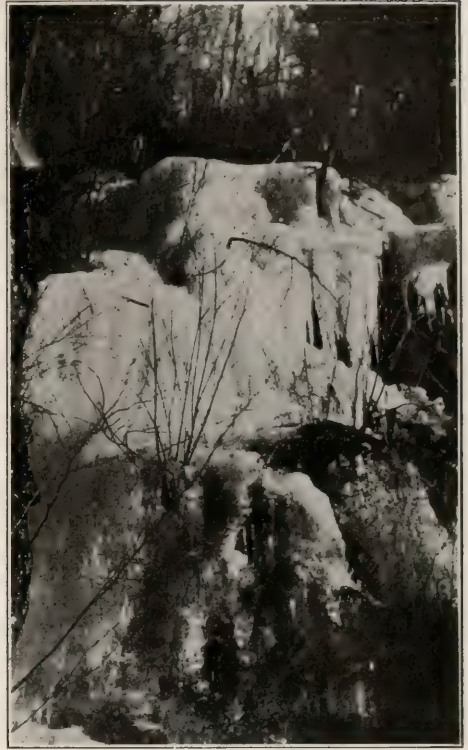
while, can take photographs which tell something worth while, and until they do these things, in Heaven's name, spare the magazine editor, who is not running a hospital for infants, nor an infirmary for the aged. Magazines have their mission in life; they want to do something, tell something, be something; if you have photographs that will further these requirements, send them along; if not, keep them at home.

Beauty Without Expression.

Here are some beautiful sentences. We wrote them with a one-cent lead pencil, all by ourselves, in this office, without the aid of a dictionary. We offer a prize of a year's subscription to THE GUIDE TO NATURE to the one who sends us the most lucid explanation of the thought and the cleverest demonstration of the meaning.

"Hope, serene and calm, rose effulgent in the diadem of the constellation. Joy and sorrow, belittled and eulogized, touched the ethereal borders of the halo. Then around Old Ocean's waste rose one prolonged echo, of the Mesopotamia of the depths of exultation. This, then, was true. Midnight, dispassionate midnight, produced the victory of the onward rolling earth. Then Ceres, god of the western cloud banks, proclaimed the majesty of all things terrestrial and true."

No, perhaps some one will tell us that there is no "beauty of thought and mean-



ICE FALLS IN WOODS.

By Franklyn Wade, Rutland, Vermont.

ing" in this, and that it is useless to seek for the prize on that basis. But we argue that the sentences contain beautiful words, are grammatically correct, will analyze and are well balanced.



GOOD VISTAS IN NEW JERSEY STREAMS.

Louis S. Kohler, Bloomfield, N. J.

If you find trouble in getting at the meaning, perhaps you may imagine how we feel while examining the avalanche of photographs that has fallen on this office in response to the advertisements for nature pictures. I believe, as the senders have insisted, that "they were done with my own camera, developed by myself, and are well balanced and beautiful."

Admitted, but with all the beauty and the mechanical perfection what does the thing mean? A photographic record, like any other, should say something, should express an idea. The conspicuous beautiful idea (not mere mechanical perfection) should be every photograph's excuse for existence. This world is too great and nature too extensive for you to "take" everything. If we have seemed absurd in using our one-cent lead pencil, to put beautiful words on paper, when

they collectively mean nothing, then you may know how some of your photographs seem to others, especially to us. You may have done the light writing well with even a dollar camera, but what's the use if the result is meaningless? Beauty that suggests nothing, that excites no emotion, that stimulates no nervous thrill to make the pulse leap, has no excuse for being. A realistic picture of a pigpen, if it has a meaning, if it teaches a useful or suggestive lesson, is more valuable than forty photographs filled with mere beauty that is empty and that connotes nothing.

The Beauty of Bare Branches.

The tree is always beautiful, but to my mind it becomes more beautiful when it is seen with its branches free from obscuring foliage. To observe a tree to the best advantage, use the de-



THE BEAUTY OF A "BARE" APPLE TREE.
See front cover for photograph of a bare sycamore.

vice that the photographer uses when he wishes to have the camera see the specimen at the best advantage. He places back of the white specimen a black background, and back of the black specimen a white background. Sometimes one can thus "hang up" a white snow background behind the tree, not by moving the background to a convenient place, but by moving one's self so that the background shall be in such a position that every detail of the tree may be perfectly seen. On a bright morning when the ground is covered with a light coat of snow, go to the edge of some valley, where you may look across and see the outlines of trees on the lower part of an opposite bank. If one cannot get into such a position, or if a tree is not in this favorable situation, one can nearly always "hang up" the sky behind it. We all look down too much; look up and the view will be specially good if your looking up is toward the bare branches. Can anything be more exquisite in beauty or in detail than the accompanying photograph of an apple tree, and also the one, on the front cover, of a bare sycamore—bare in more senses than one? Not only have the leaves of the sycamore fallen, but the photograph shows that the branches have shed their outer layer of bark and have left the inner coat in its clean, beautiful whiteness. These photographs were not taken in distant lands, but within a short distance of our own Arcadia. I trust they will be recognized by local residents as trees that they have often noticed and admired at Adams Corner. The apple tree is in a field just north of the trolley junction and the sycamore a few rods south of that end of the Sound Beach line. If our camerists will look upward for a time they will find it a good exercise. Some day we will show other results of the editor's efforts to portray natural beauty. In the meantime he invites the co-operation of other camerists. Let us have an exhibition of this beauty of bare branches that will be really worth while.

The Shortest Scientific Poem.

THE ANTIQUITY OF MICROBES.

Adam
Had 'em.

That Invited Lens Talk.

BY GEO. W. KELLOGG, ROCHESTER, N. Y.

THE GUIDE TO NATURE for January, 1910, invited readers to talk about lenses and, during the time which has intervened, has published one response to that invitation, a talk out of the ordinary: for it was based on a lens-user's experience instead of the lens-catalogue-maker's stereotyped statements.

The insinuation that the writer rushed into print in envy, ignorance and anger is not justified by the contents of the article. Every grade of lens which was mentioned was classified according to its merits and in the order which was its due: the anastigmat first place; the rectilinear second; the single third. There was a conspicuous absence of the customary advertising of lenses by some favorite maker; there was no abuse or condemnation of any make or grade of lenses. The writer was not handicapped by obligations for favors received, for he had bought, had paid the price asked in cash, and without dickering, for every lens that he owns. The writer was consistent, for he recommended no sacrifice which he had not made.

The discussion was fair; it was from the view point of the many, to whom the ownership of an anastigmat is, at present, an impossibility; it was not a throwing of mud, stones, or a calling of names. The writer has facts with which to prove his assertions, and does not need, in order that he may make an appearance, to heap abuse upon his opponent, or his opponent's lenses. The good anastigmat is the best, for the scope of its usefulness is greatest.

Of the statements in that article, two—two only—have been challenged. As to the first, I concede that my opponent is right: "The reader can hope to afford." On the second, I "stand pat": the credit which is due the lens, "twenty-five per cent."; and the "seventy-five per cent." of credit, or discredit, which belongs to the man who uses the lens. Is it one hundred per cent. lens because a dozen exposures result in a dozen failures from under

exposures, over exposures, double exposures, the movement or jarring of the camera during the exposures, and incorrect focusing. If a hundred per cent. worker is necessary for a lens to make good, by what process of reasoning does the editor arrive at the conclusion that it is one hundred per cent. lens? Let us get together with our proofs; not for controversy, but to bring out all of the truth.

Get down to business. Cut out this "kiddish," "Cheap John, decrepit old plug of a lens" talk; for while it is not argument, it is evidence of poverty of argument. Let us prove, not by what the maker says, but by our experiences, what can be done with the good anastigmat that other lenses will not do as well.

The Evil of the Snap.

"Going to snap it on me?"

"How many snaps did you take?"

"Snapping much nowadays with the kodak?"

"Just snap it on me, will you?"

Thus it became common to speak of the use of the camera, or rather the kodak, as snapping it, but this snapping is as promiscuous and undesirable as the snapping of a vicious dog or of irritable people. Both do only harm. Monstrosities that call themselves photographs are made by snapping.

Go into the developing room of any developer who does a large amount of work for amateurs and see in his drying room the long rolls of transparencies with here and there a faint shadow upon a part of them, and inquire what those things are. He will tell you that they are amateurs' snap shots. He will, perhaps, out of a row of films, get one respectable or fairly respectable picture, content if a little of it is seen in the blackness of the surroundings, and will print that and put the others in an envelope to be returned to the kodaker. These transparent films with only a suggestion of a picture upon them are the perniciousness of the snap.

Where is the user of a kodak who would "take" a friend with an exposure no longer than the snap? Where is the one who would stand before a group

and "take" it with only a snap exposure? Where is the real photographer that would "take" a scene with nothing more than such a snap?

I recently saw about a yard of film, perfectly clear, with not even the suggestion of a shadow upon it, in the possession of a young lady who informed me that she wanted to have it developed and printed because on it were a lot of snap shots of her room. The perniciousness of the snap was self-evident, and you can imagine her surprise when I told her that I had never taken the interior of a room in less than three and one-half minutes, although my lens is far superior to hers.

Some of the best photographs of still objects published in this magazine have been taken under an exposure, in a well-lighted gallery, of from one and one-half to two minutes. Stop your lens down for great sharpness and give plenty of time. Some of the photomicrographic work was done with an exposure of from fifteen to twenty minutes. I know a photographer who took the interior of a room with a three hours' exposure. He set up the camera, went away and left it for three hours, the result being a perfectly ideal photograph that showed every detail of the room. No instruction to the amateur seems harder to fix in his mind than this. If the object is still, take plenty of time, the longer the better. With the fastest lenses made, the Unar and Celor, both of which I use, I seldom make an exposure quicker than one-fifth of a second. Most of my work on houses, scenery or outdoor growths takes one second even in sunlight, unless the object is moving like the leaves of a tree. Photographs, therefore, are not snap shots, but are the time impressions of the object. Where is the skilled photographer who ever uses as high as one-hundredth except with focal plane? Many of the photographic magazines are guilty of misleading their readers by stating that this photograph was taken in one-eight-hundredth second or one-thousandth of a second. In bright sunlight with the fastest lens and always with the focal plane shutter, such small fractions of a second are possible.



Incorporated, Massachusetts, 1892

Incorporated, Connecticut, 1910

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Agassiz's Belief.

Professor Mills, who died a few years ago, says the New York Times, was a friend and pupil of Agassiz. They met cordially on a scientific footing, but the real interest that drew them together was the belief, common to both, that the outer world, with all its laws and phenomena, was the handiwork of the God who dwelt within it, and was not only its Creator, but its continued source.

"All life is from within," was Agassiz's constant assertion. To both him and his friend God was the one fundamental fact of the universe. It was thus that a dream of Mr. Mills on the very night of the death of Agassiz always seemed to him to possess a certain strange significance.

On the night that Agassiz died, Mr. Mills, who was in the West, dreamed that he and his friend were standing on the seashore. Agassiz picked up an atom from the sands, like a tiny jellyfish, and held it in his outstretched hand while they watched it grow before their eyes, with no means of obtaining nourishment from the outer world, until it became a large, well-formed creature.

"There," said Agassiz, "I always told you that life is from within."

When Mr. Mills went to the breakfast table that morning, the first words that greeted him were, "Your friend Agassiz has gone." The dream had been so vivid that it seemed to him like a farewell message from his friend, leaving this earth with the words on his lips which were a declaration of his life—long faith in the immanence of God in His creation—*Youth's Companion*.

An AA Member's Arcadia.

Cheney, Washington.

To the Editor:—

I am sending a small photograph of the Arcadia in my back yard. It was built for a brooder house as we were trying to raise some early chickens but was not used for that purpose, as we found it too small. A young Arcadian took possession, and at once proceeded to furnish the building to suit herself. There are shelves and tables, and these hold an odd assortment of jars, jelly glasses, tin cans and boxes of different kinds, and one box with a glass top.

So far this Arcadian has studied nature, not books, and as her choice of nature study is not mine I cannot help her much. Some persons object to any study of science on account of hard names, and some people are in the habit

of saying "How can you remember such hard names?" Now I find you

cannot learn anything about any ob-
ject without having names for the
objects. And also that names are hard

This peculiar mound of earth is an Indian home. The Indian calls it a tohogan. The door is a blanket hung over the opening to keep out the cold. You must stoop to enter. In the center of the floor is the fire. The smoke escapes through a hole in the roof. If you want to sit down, those sheep-skins will serve as seats. They serve as beds. Here is a loom with an unfinished blanket on it. You cannot tell what the design is to be, for the squaw invents that as she weaves.

The books no doubt will tell us that Over here, hung on a log, is the own-er's jewelry. Here are the beads that are handed down from generation to generation, and belts, and a hat trimmed with eagle feathers.



AN AA MEMBER'S BACK YARD ARCADIA.

flies, moths and spiders. This Arcadia was occupied a year before you had your buildings at Sound Beach. But it had no name, and we did not know it was an Arcadia until we read about it in *THE GUIDE TO NATURE*. Nature students may get along without books, but they find a *GUIDE* very helpful.

SUSAN TUCKER.

A Study of a Hogan.

BY ALICE SPRINGSTEAD,

CORRESPONDING MEMBER NO. 2000 OF THE
AA, KALAMAZOO, MICHIGAN.

A little girl, about eight years of age, is rocking a baby in an awa-tscha. A soap box does duty as a cupboard. In it are kept the few dishes which her mother has—a cup or two, a coffee-pot and a frying pan.

Do you notice the mingled odor of mutton grease and of cedar? That is the Indian's regular and popular per-



AN AA MEMBER'S STUDY OF A HOGAN.

fume. It is really necessary to get into the fresh air.

A corral encloses the sheep at night, and there are several fierce dogs nearby to protect them from bobcats, coyotes and mountain lions.

Indians are fond of pets. They usually have several cats.

That keg is full of water from the river. Leaning against it is a doll, but it is only a stick with a piece of rag wrapped around it for a dress.

It is getting late. We must hurry to a home that is not a hogan, but in which the dwellers are probably no happier than the hogan dwellers. Adios!

Two Interesting Observations.

BY HARRIET E. WILSON (C. M. NO. 2101),
STORMSTOWN, PENNSYLVANIA.

Raspberries in September.

September 22, while working around a raspberry bush I found a cluster of large red raspberries that were covered with clay, making them unfit to eat. Probably it was the clay that had preserved them.

Rats and Cream.

Before the cream separator was in general use, the milk was kept in tin pans set in water in the stone spring house.

The rats had been drinking Aunt Mary's cream. One day on her visit to the spring house, she heard a noise and determined to investigate. She stood and watched the rats prancing about on the lids that covered the milk pans. They had them practically removed, and down went each tail into the cream. Then the rat would eat the cream from its own tail. This was repeated again and again.

Persons have observed rats carrying hens' eggs by wrapping the tail around the egg.

How it Collapsed.

One of our esteemed, old-time members, quiescent for several years, has just written to us in great surprise. He says he supposed that the AA died years ago, that he didn't know what we are doing, didn't know that the AA had changed its location, didn't know we had an official magazine—in fact, didn't seem to know much of anything.

Curious, isn't it, that when one lies down in the shadow of the tree and goes comfortably to sleep, all the world seems dead?

From ever being a "has been," may the Good Lord deliver us—until He takes us.



BY HARLAN H. BALLARD, PITTSFIELD,
MASS.

Originator and First President of The Agassiz
Association

The Agassiz Association, for the observation and study of nature, was founded in 1875 by the writer, in connection with a school which he was then teaching in Lenox, Mass. It was the outgrowth of a life-long love for nature, and a belief that education is incomplete unless it include some practical knowledge of the common objects that surround us. For several years the little school society continued its work pleasantly and with profit. The president gradually came to the opinion (strengthened by reading an account of a somewhat similar, though far more limited, organization in Switzerland), that there might be

other communities in which a like society would be welcomed, and several branch societies were organized.

We chose the name "Agassiz" because it was then uppermost in mind. His then recent death was fresh in the hearts of the nation; and his birth in Switzerland, where a similar organization was said to exist, rendered it especially appropriate. The choice was wiser than we knew. No one can read Mrs. Agassiz's life of her husband without feeling that no name could better stimulate us to faithful work.

Having thus selected the name, a letter was sent to Prof. Alexander Agassiz, asking permission to publicly adopt it. Prof. Agassiz replied that he "cordially assents that this very pleasant and useful plan be called The Agassiz Association, and that we have his hearty good wishes for its success."

A general invitation to unite in the work was published in 1880.

This invitation met a response at

once gratifying and unexpected. A very general interest in the study of nature has been evinced by young and old. Classes or chapters have been formed in different towns, under the direction of the central organization, and, where this has been impracticable, individuals have joined as corresponding members. Since 1880, more than twenty thousand students have been aided, and more than twelve hundred local scientific societies established.

In April, 1892, The Agassiz Association, first established in 1875, became an incorporated society.

"The PURPOSE for which the corporation is constituted is the promotion of scientific education; the advancement of science the collection in museums of natural and scientific specimens; the employment of observers and teachers in the different departments of science, and the general diffusion of knowledge."—From Articles of Agreement.

The Agassiz Association will be best understood by regarding it as an educational institution. It is not primarily a scientific society. It does not attempt the sort of work undertaken by the American Association for the Advancement of Science. It does not hope to add much, directly, to the sum of human knowledge.

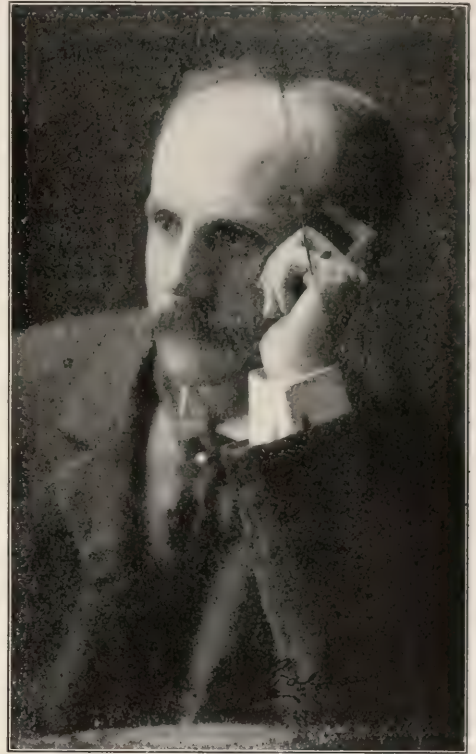
Its aim is rather, and always has been, to interest fresh minds in the study of nature and science, and to train them to intelligent methods of study, and to honest work.

The methods by which The Agassiz Association seeks to educate its members, are based on a single principle, which must be clearly apprehended, and fully accepted by everyone who hopes to understand and sympathize with our work.

Physical power grows by the exercise of the muscles. You cannot train a crew by teaching them a theory of rowing, nor by presenting to them a boat and oars of the latest and best construction, nor by hiring men to run, and row, and pull weights for them. They must learn to row by rowing. The only way a weak rower can be-

come strong is to row just as well as he can for his strength.

So brain power grows by exercise of the brain. Dumb-bells can't make a man intelligent; neither can books. A man must learn to think by thinking. There's no other way. The brain is not a receptacle to be filled; it is not merely an instrument to be used;



HARLAN H. BALLARD,
Pittsfield, Mass.

it is a living organ and must grow. It must acquire strength by exercise, and it must gain skill by practice.

The study of natural objects not only trains the perceptive faculties and ministers to the love of beauty, but, as we pursue it, it leads us out of doors, into the fresh air and the life-giving influence of the sun; and by these and the vigorous exercise gained by mountain climbing and valley rambling, adds to the health of the body and the invigorating of the mind.

What, then, is the Agassiz Association as it appears to-day? And what

claims has it upon the interest of the public? It is a union of local societies, each numbering from 4 to 120 members, of all ages from 4 to 84. Our total membership is above ten thousand. We are distributed in all the States and Territories with very few exceptions, and have organized branch societies in Canada, England, Ireland, Scotland, Chili, Japan, Persia, and other countries.

The local societies are known as "chapters." They take their names from the towns where they are established, and are further distinguished by letters of the alphabet. Thus the first chapter established in New York City was called New York (A); the second, New York (B); and so on.

I may mention four different sorts of chapters. First, family chapters. The parents and children of a single family unite for joint study and research. Chapters of this sort are especially desirable, and prove almost uniformly permanent. Chapters of another sort are found in schools. There are many teachers able and willing to give their strength and time, beyond the exacting requirements of their contracts, to the encouragement and assistance of their pupils. Under the fostering care of such men and women, the happiest results have been accomplished. Not the least important result is seen in the pleasant personal relations thus established between teacher and pupil. Chapters of a third kind are organized and conducted entirely by young persons. A company of girls or boys meet together and decide to form a branch of the AA. They elect their officers, draft their rules and by-laws, engage their rooms, build their cabinets, make their collections, prosecute their studies; and if I needed to awaken interest or arouse enthusiasm, I should have only to show what our boys and girls have done even when unaided and alone. They have made lists of all the flowers that grow about them, and of all the birds that fly over their heads. They have published papers, started museums, founded libraries. In doing this they have mastered the laws of

parliamentary debate; have learned to observe with accuracy, to write with fluency, to speak with power; and, after thus working for a few years, many of them have pushed themselves into schools and colleges and laboratories of the highest grade, and are now completing their self-appointed preparation for lives of commanding intelligence and cheerful service. Finally, I will mention chapters of adults. In increasing numbers, men and women of mature years, feeling the need of scientific training which the schools of their childhood failed to give, are organizing societies, joining their influence to our Association, and receiving in return the benefits coming from united endeavor and from enthusiastic devotion to a common cause.

Embracing all the little chapters, binding into one the larger and more powerful assemblies, and making room also for individuals when chapters cannot well be formed, is our Agassiz Association. There are many chapters, but only one Association. And the influence and prosperity of each chapter can be increased and perpetuated by spreading everywhere we go a knowledge of our local work not only, and of our local organization, but also, and even with more emphasis, a knowledge of our entire Association, with its broader membership and farther-reaching aims.

It seems at first thought difficult, if not impossible, to suggest any general principle of study that can apply to the whole Association, for it is composed of elements so diverse.

We are of all ages, of varying capacities and differing desires, living in places widely distant and widely different. Some of us pick our violets in June, others in January.

But there is a common ground on which we all stand—love of nature and desire for knowledge. And there is one principle that underlies and determines the methods of our study. It is this: Nature must be studied from her own book.

While, therefore, we do not undervalue the printed records of others' work, and while we ever recognize

in printed books and papers necessary and cherished guides, yet we believe that our first business is to meet Nature face to face. Therefore we leave the confines of the library and school, and go out under the open sky, into the forest and along the stream.

Forgetting theory and useless wrangling, it is our purpose to see things as they are, and to record them as we see them. It is the business of The Agassiz Association to live for the truth.

Admirably some of our chapters unite science and humanity. They have proved that, although the eye of science is keen, her heart need not be cold, and that her hand, however cunning, may yet be kind.

But Agassiz was not only merciful: he was devout. Before opening his famous school at Penikese, he bowed

his head in silent prayer; and, as the ocean-breeze gently lifted his whitening locks, every head was bowed with reverence, and it seemed as though the Spirit of God were there. We therefore beg our members, as they walk through this fair garden of the Lord (and this thought I echo from the lips of Dr. Parkhurst), not to let the beauty of the creation hide from them the face of the Creator. We do not believe that faith is inconsistent with intelligence, hope at variance with knowledge, or love opposed to science. "The garden of the Lord should not conceal the Lord of the garden. Let us study with the eye not only, but with the heart; and may we all be lifted to a sweet consciousness of Nature's ministrations, the beauty of her handiwork, the music of her singing, and the tenderness of her love."

The La Rue Holmes Nature Lovers League

By George Klinge, Summit, New Jersey

"THE GUIDE TO NATURE" is the official organ of the LaRue Holmes Nature League. It is important, for the general League interest, that the magazine be liberally supported, through the active cooperation of League members—George Klinge.

L. H. Nature League Motto: "Self-sacrifice; heroism for another."

Was the chipmunk seen sitting on a stone enjoying a feast of mushroom, merely indulging in a freak-appetite, or is this a familiar article of diet in the chipmunk family?

Why is it that when the autumn breath sweeps over, the birds drift out of sight, into the shelter of wood-tangles and hedges, but when the frosts come they again flit over the gardens, and revel at many a familiar haunt? Is food changed to new flavors by the touch of the frost?

The little birds have a right undoubtedly to take the world easy as far as may be, but we quite wonder if all little brown creepers of other localities, are as shrewd about it as those with us, who install themselves on the tree beneath nut hatches who are feeding on suet, and enjoy a feast without the trouble of laboring for it.

Best Faces Fade from Memory.

Can anyone interested in mental processes explain why a face around which centers the most intense interest vanishes from memory, while all other faces associated with the period and locality remain intact in the memory?

Several New Chapters.

The most recently organized United Chapters are as follows: Miss Dana's School, South Street, Morristown; The Westfield High School, Westfield, Bond Street High School; Bradley School; Prospect Ave. and Springwood Ave. Schools, all of Asbury Park, New Jersey.

Did He Summon Aid?

Could it be supposed that the cock of the barnyard walk is a creature of less courage than his wife, as the fol-

lowing coincidence would seem to indicate?

A pompous fowl observing a dog enjoying a meat-covered bone, conceived the malignant design of appropriating the feast. In this interest he dodged toward the owner of the prize, with an amazingly quick jerk, without further attack, instantly moved down the path, returning immediately with two hens, who, without delay captured the remnant of the feast, retreating with it toward the excited cock, who thus ac-

cepted opportunity without effort or adventure.

Records of Migrations.

The migrations are over. The census of the remaining wealth of your locality in wild flowers has been taken, will you send to me copies of such records, together, perhaps, with the names of the most successful members of Chapters who seek to know, by sight and name the wild things of the woods?

LITERARY AND BIOGRAPHICAL

Flemish Giants and Other Rabbits. By Johnson & Ellard. Cleveland, Ohio.

This book is intended to give the average fancier the information he most needs and to briefly describe the variety of rabbits that seem to have the greatest promise of a very popular future.

Little Gardens for Boys and Girls. By Myrta Margaret Higgins. Boston and New York: Houghton Mifflin Company.

This is in the right direction of simple aid in finding the true value of gardening. It tells how to do things, and arouses an interest in plant life.

Elements of Descriptive Astronomy. A Text-book. By Herbert A. Howe, A. M., Sc. D. New York: Silver, Burdett & Company.

This is a popular and well-known text-book of astronomy excellently adapted to the amateur. It is a readable and inspiring book.

Methods of Attracting Birds. By Gilbert H. Trafton. Boston: Houghton Mifflin Company.

This book has been written from two viewpoints, that of birds and that of human beings; for the protection of the former and the pleasure of the latter.

Pansies, Violas and Violets. By William Cuthbertson, J. P. With eight colored plates. New York: Frederick A. Stokes Company.

An interesting, well written and beautifully illustrated monograph of these popular flowers. It contains several plates in colors.

The American Annual of Photography, 1911. New York City: 57 East Ninth Street, George Murphy, Inc., General Sales Agents.

This delightful annual, in which all photographers take pride, grows larger and better in the successive issues. This number just issued contains a large variety of thoroughly practical articles and beautiful illustrations from photographs that show one just how to do it and do it rightly. Everyone who has gotten beyond the Brownie stage should send at once for a copy of this practical and attractive book.

Flower and Bird Guides. By Chester A. Reed. With colored illustrations. Worcester, Massachusetts: Chas. K. Reed.

We are in receipt of three very beautiful little handbooks, two of them pertaining to birds and one to flowers of western North America. One bird book is devoted to land birds and the other to water birds, game birds and birds of prey. These are just the right size to place in an interior coat pocket, as they are about the size and general appearance of a somewhat thick, open end, leather-covered memoranda book. Each book contains illustrations in colors, and by the side of each is a description, all very convenient, clear and attractive. Mr. Reed has conferred a great favor upon every naturalist by issuing these neat little handbooks and should be rewarded for the expense he has put into them, by liberal orders from all. Write him for further particulars. He is a real naturalist, not a compiler, and knows what he is writing and illustrating.

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'Tis not in mortals to COMMAND success, but we'll do more, Sempronius, we'll DESERVE IT. — *Addison: Cato.*

Wanamaker's and John Wanamaker.

Ways of doing business in all first-class stores have become so fixed and generally uniform that the present generation would find it difficult to appreciate the great change wrought in comparatively recent years in methods of selling and buying in the great department stores.

Shopping nowadays means examining and pricing different articles, in perhaps a number of different stores, without the slightest idea that the tagged or asking prices are in any way subject to alteration.

In times not so far distant, shopping was a much more complicated operation. Goods were almost universally marked at figures considerably above what they could be bought at, or in hieroglyphics unreadable to the buyer. Hagglng over prices was expected and "Caveat Empor" (let the buyer beware) a mighty good rule to keep in mind. The unwary purchaser frequently paid for some article two or three times as much as his more experienced neighbor.

Back in the sixties there became prominent among the merchants of America a man who preached—and *practiced* as he preached—the doctrines of fair play and a square deal to everybody. He marked all the goods in his Philadelphia store in plain figures and spread broadcast the announcement that his plainly marked prices were as low as goods of equal quality could be bought for anywhere, and that thereafter every customer in his store would be treated on exactly equal terms. Other merchants were amazed or amused, as the mood struck them, and predicted the early collapse of so radical and ridiculous a policy, and the quick insolvency of its author.

But the people tried the new scheme; they bought John Wanamaker's goods, found them exactly what John Wana-

maker said they were, told their friends about the new and comfortable way of getting a fair money's worth—and kept on buying.

One by one, every other first-class merchant in this country was obliged to adopt the same policy and, as a consequence, in all large stores hagglng over prices is a process entirely unknown to the present generation of purchasers.

Then John Wanamaker inaugurated another policy, equally revolutionary in its way. He announced that a sale of goods in his store was not to be considered a sale unless the customer was satisfied with his purchase. He instructed his managers not to insist on reasons when goods were returned. If a customer preferred his money to the goods, that was all sufficient. The one thing Wanamaker's could not afford was a dissatisfied customer.

On the basis of this principle a mail order service was then built up which now extends into every State and territory of the Union and to all other parts of the world. Purchasers no longer are obliged to visit New York or Philadelphia in order to shop at Wanamaker's. Wanamaker's comes to them. Every crossroads' post office, express station or freight depot is a potential Wanamaker's.

Shopping at Wanamaker's by mail has been made so easy, so convenient and, above all else, so satisfactory, that it has become a veritable boon to thousands of women living on farms or in isolated hamlets throughout the country. A Wanamaker's mail order catalog in the house means Wanamaker's great stores and extensive stocks right at hand. And a customer a thousand miles away from Wanamaker's knows that she can "shop at Wanamaker's" just as inexpensively and satisfactorily as though she lived in Philadelphia or New York.

THE GUIDE TO NATURE

Volume III

MARCH, 1911

Number 11



**"THESE OXEN HAVE THE GOOD LUCK TO LIVE OUT
THE FULL NUMBER OF THEIR DAYS." See page 451**

EDWARD F. BIGELOW, Managing Editor

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You cannot fathom my appreciation of your most valuable magazine. I never knew before that I too was such a lover of God's gifts to man until I received your most valuable magazine. It has inspired me to greater thoughts and greater deeds. I see things now that were blank to me before, and I can talk it to others that were blind to all nature as you might say. Thank you for the good you are doing and then again thank

you fervently for the good you have done me.—*A. D. D. Wood, Lansing, Michigan.*

I examine each number with great interest and am pleased with the great strides you have recently made both in subject matter and the general scope of the magazine.—*Chas. W. Miller, Director Worthington Society for the Study of Bird Life, Shawnee-on-Delaware, Pennsylvania.*



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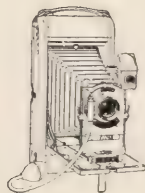
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'Tis not in mortals to **COMMAND** success, but we'll do more, Sempronius, we'll **DESERVE IT.** *Addison: Cato.*

Chickens for the Suburbanite.

Everybody likes chickens and every magazine devoted to suburbs and country advocates the keeping of at least a few. All these periodicals usually tell of the old hen's joys or of the advantages of wholesale hatching in a modern incubator.

I firmly believe that the old hen is too fussy and takes too long a time. The incubator is far too expensive, occupies too much room, and demands too much care to make it advantageous for one who wishes to keep not more than a hundred or a hundred and fifty chickens. This is the day of modern invention, progress and specialization. The hen is too old-fashioned. The use of the incubator belongs to the specialist. It is a tool that in its use requires skill. The best incubator is the expressman; he requires little time and little attention other than to sign his book

and accept his package. Begin the chicken business at the interesting point. There is plenty of detail in caring for the little chickens in the brooder. For several days they may be kept in a large drygoods box covered with some convenient arrangement of cloth, whereby they may be kept warm and comfortable. You might dispense with the brooder but it is better to have one with a wire covered run, and it preferably should be kept indoors. Keep the bottom of the brooder covered with a shallow layer of alfalfa, and you will have no end of joy in watching the fluffy little pets. I have heard of a small boy who, upon receiving his first live pet, exclaimed, in joy that he now had something better than wooden toys, "At last, I am the parent of a living creature." One feels, in caring for chickens which have been hatched out under the hen,



"THE BEST INCUBATOR IS THE EXPRESSMAN."
"Sign his book and accept his package."



TAKE OFF THE COVER AND BEGIN AT THE MOST INTERESTING POINT.

that by rights they belong to the hen; but when one gets them by express they seem like waifs that have come for care and therefore demand parental love, and the greater the love for anything the greater the joy of doing or of having. We, therefore, recommend that our readers who wish to have a supply of chickens should order them from some well known house that will supply them at as low a rate as is con-

sistent with good stock. Those pictured in the accompanying illustrations are single-combed white leg-horns from Mr. George C. Thomas, Willimantic, Connecticut. Undoubtedly he will be glad to correspond with any one interested. His chickens arrive in good condition because he knows how to pack and ship them and he has good stock that he sells at moderate prices.



"WE ARRIVED IN GOOD CONDITION AND ARE DOING WELL, THANK YOU."



DO NOT PLAY WITH THEM TOO LONG BUT GET THEM "AT HOME" IN THE BROODER.

LITERARY AND BIOGRAPHICAL

The Stone Age.

The Editor has received from Messrs. Houghton Mifflin Company, of Boston, two beautiful volumes entitled "The Stone Age in North America." These are illustrated by 723 plates, mostly full page, of weapons, ornaments, utensils and various implements made use of by the ancient Indians in America. The work was written by Professor Warren K. Moorehead of Andover, who has spent some twenty-five years in the study of the Indian, both ancient and modern. We recommend this work to all persons who are interested in the strange art of the American Indians.

Messrs. Houghton Mifflin, 4 Park St., Boston, Mass., will send a circular describing the book to those who request same.

Common Weeds of the Farm and Garden. By Harold C. Long, B. Sc. (Edin.). In collaboration with John Percival, M. A., F. L. S. New York: Frederick A. Stokes Company.

This volume, dealing with weeds and their destruction, and summarizing under one cover the information scattered in many volumes in this and other countries, is of practical value, because it supplies a real need, and proves useful to all engaged in the various branches of agriculture.

Hardy Plants for Cottage Gardens. By Helen R. Albee. New York: Henry Holt & Company.

A personal and very reliable record, illustrated by photographs, of the author's success in assembling within a limited area, the choice varieties of hardy shrubs, annuals and perennials, so arranged as to give a succession of bloom of pure color in each bed.

Fish Stories. By Charles F. Holder and David Starr Jordan. With colored plates and many illustrations from photographs. New York City: Henry Holt & Company.

The authors are, respectively, probably the most prominent amateur and professional ichthyologists of the country; and this volume tells their unusual fishing exploits and their best fish stories.

"Bird-Lore" for February contains the results of a bird census made on Christmas Day in which the census-takers covered the country from the Atlantic to the Pacific and from the Gulf to Canada. The results give one a fairly accurate picture of the winter bird life of almost any part of the United States, and is of both popular interest and scientific value.

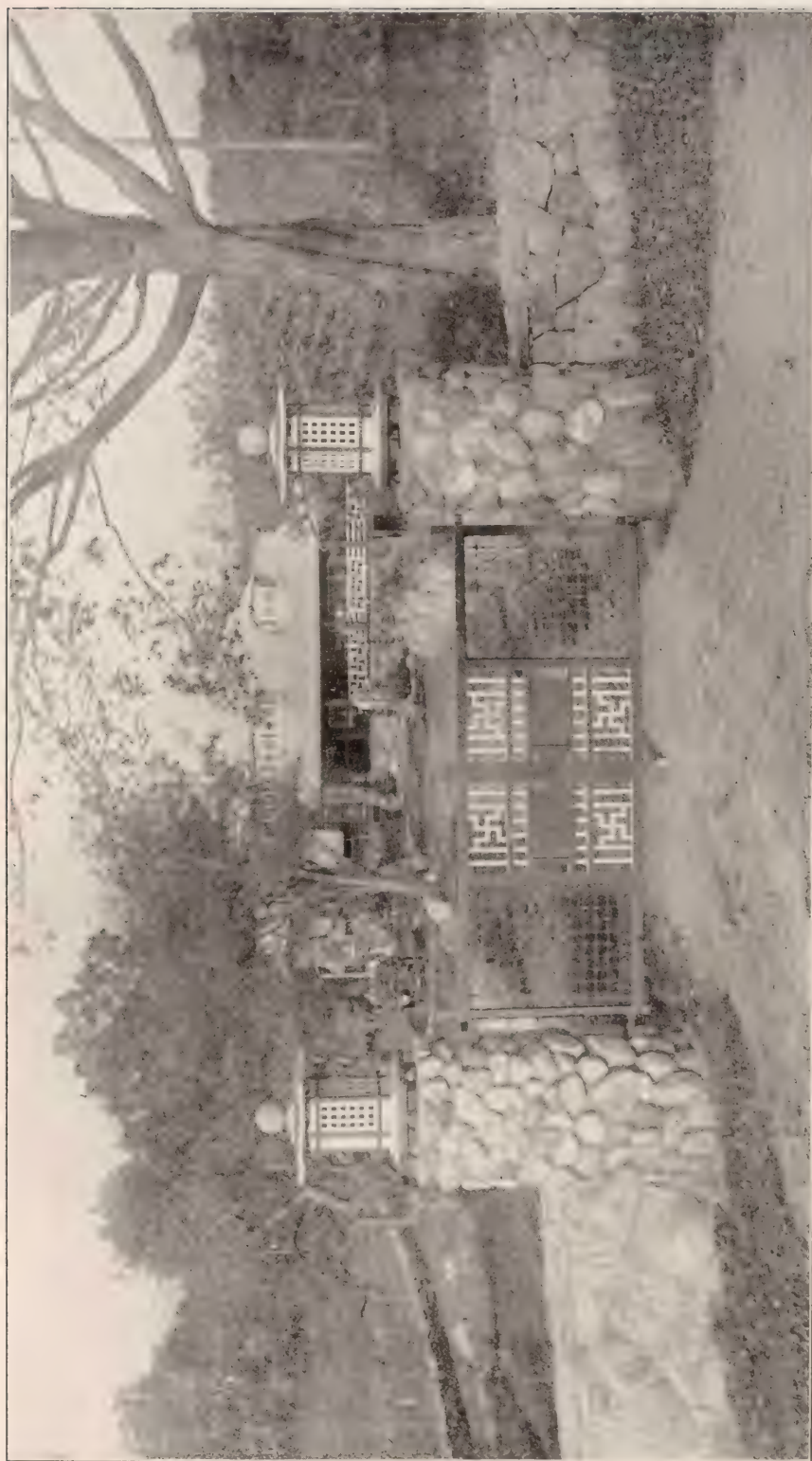


Cities, doubtless, are rational and logical things from many points of view, and to the greater percentage of urban dwellers the cry of nature would awaken no responsive call. They are covered over and surrounded and permeated with such a depth and breadth and weight of tradition, like so many ships at the bottom of the sea, that any influence from the outside fails to reach them, fails to affect them any more than the wind and storm-waves disturb the wrecks cradled on the ocean's floor.



Occasionally, to an individual among benighted city dwellers comes a voice or a written word, like a diver to an isolated treasure-hulk, which sets in motion influences that eventually carry the subject to the surface and away from the entombment. Other individuals, like ocean's flotsam and jetsam, are simply spued up by the city sea. To which class of the rescued we belong it is hard to say; for we don't seem to remember the time when the message of nature came unheeded to our ears, or when the longing for country life did not exist.—*Walter P. Terry.*





THE FYLFOT BUNGALOW AT LONG RIDGE (STAMFORD), CONNECTICUT.
"I saw that even the gate wished us good luck by its latticework designs of fylfot or swastika."

It's March! The Naturalist's New Year!

Happy indeed is the naturalist: to him the seasons come round like old friends; to him the birds sing: as he walks along, the flowers stretch out from the hedges, or look up from the ground; and as each year fades away, he looks back on a fresh store of happy memories.—Sir John Lubbock in "*The Beauties of Nature*."



THE GUIDE TO NATURE

EDUCATION AND RECREATION

Volume III

MARCH 1911

Number 11



A Bungalow of Restful Good Luck

By EDWARD F. BIGELOW, Arcadia: Sound Beach, Connecticut



IDSUMMER, drowsy, hot, quiet, gradually merged into Indian summer, and held full sway above the hills and fields and meadows over which I, with a few friends and a camera, had been traveling for many an hour. We had explored the recesses of the ravines, enjoyed the brook's banks and tried to bring back in our photographs at least a section of the climbing hemp weed as the festoons started upward on the clump of alders. We climbed the hill and at the very summit stopped, like Virgil of old, for half an hour under the shade of a spreading beech tree. Then we took a cart path, descended to the main road, and thence were homeward bound, not tired of the tramp, nor of the turning of slides in many a holder

black side outward, nor of carrying the well filled vasculum of botanical souvenirs from field, forest and meadows, but tired *with* them.

We were in just the right spirit of mind to welcome any emblem of restfulness and peace. Such an emblem was in a neighboring pasture in the shape of two oxen unyoked and standing in similar attitudes of cooperation in rest as they had stood in work. This was the magnet that drew one more slide from the camera holder, and the result is shown on the front cover of this number of *THE GUIDE TO NATURE*.

"Who owns these?" I inquired.

"Why, don't you know? These are the most famous oxen in all this part of Long Ridge. They formerly, by many a strenuous pull, drew the logs from the stumpy field from which we have



NOT REALLY WORK, BUT JUST A LITTLE "PLAY" AT IT—FOR EXERCISE.
This gave an ideal charm to the premise—a dreamland effect.

just passed. They did belong to the lumberman that cleared that hill but they are now owned by Mr. Walter P. Terry who came up from New York and built the good luck bungalow."

As we advanced along the road, I saw that even the front gate wished us good luck by its latticework designs of

fylfot or swastika. The antiquary or the jeweler may find in the swastika an emblem of good luck, but to my mind the lowered heads of that yoke of oxen were more beautiful and more suggestive of peaceful thoughts and pleasant anticipations than forty fylfots could be.



"I MADE BOLD TO VISIT THE BUNGALOW AND TO ASK QUESTIONS."

Upon further inquiry I learned that these oxen have the good luck to live out the full number of their days in the peaceful pastures and the protective barns near the scene of their former strenuous labors.

Some farmers have been disposed to ridicule Mr. Terry for sacrificing dollars and beef since no butcher will ever be allowed to plant an axe head between those oxen's horns. To see these animals thus spending their last days in happiness was to me the happiest possible termination of the long

learn more of their present circumstances and future prospects, I made bold to visit the bungalow and to ask questions. Here I discovered an interesting method of getting near to the heart of nature, delightfully restful after days and months amid the strife, turmoil and bedlam of almost the central part of New York City.

The fylfot bungalow of Mr. and Mrs. Walter P. Terry is the antithesis of a residence near to the busy marts of Twenty-third Street, New York City. It appears, as ascertained upon inquiry,



"DELIGHTFULLY RESTFUL AFTER DAYS AND MONTHS AMID THE STRIFE, TURMOIL AND BEDLAM OF ALMOST THE CENTRAL PART OF NEW YORK CITY."

hours that I had spent in strenuous traveling in search of specimens of our smaller plants. Our day of trial and pleasure, terminated by the half hour under that restful beech tree, was to me a sample of the long days that these four-footed botanists now enjoyed after spending the greater part of their life, not, like us, in selfish pursuits, but in labor for the welfare of others. To

that they had for a time spent their vacations at a hospitable farmhouse in that part of Long Ridge, and quite naturally had fallen in love with the rugged and stony but peaceful hills and pastures, and a year later they had, largely by their own hands and wholly by their own unique designs, built one of the most beautiful bungalows in existence. The swastika or fylfot dom-



"THE JAPANESE HALL.—UPSTAIRS."



THE STAIRWAY TO THE JAPANESE HALL.

inated everything in every nook and corner from the front gate through the fences, the veranda, the hall, up the stairs. A few more camera plates exposed give to the reader some of the views as I saw them in this beautiful home. I appreciated the cordial hospitality of the host and hostess, and I fell in love with the unique design of the bungalow. Here from crowded cities come many friends to be alone with nature. How Mr. and Mrs. Terry conceived the idea of building a home of such design, and how they accomplished it, is told in the following letter that Mr. Terry has written at my urgent request:

358 West Twenty-third Street,
New York.

My dear Dr. Bigelow:

It is somewhat difficult to set down on paper any particular reason or reasons why we have built a home in the country, other than to say it was in

response to an inherent call to get away from artificialities and convention—to be where one could live one's daily life and act upon one's individual impulses without taking into consultation (so to speak) two or three million neighbors.

Cities, doubtless, are rational and logical things from many points of view, and to the greater percentage of urban dwellers the cry of nature would awaken no responsive call. They are covered over and surrounded and permeated with such a depth and breadth and weight of tradition, like so many ships at the bottom of the sea, that any

the subject to the surface and away from the entombment. Other individuals, like ocean's flotsam and jetsam, are simply spued up by the city sea. To which class of the rescued we belong it is hard to say; for we don't seem to remember the time when the message of nature came unheeded to our ears, or when the longing for country life did not exist.

And we wanted no suburban life—in the sense in which that term is generally employed. As we look at it, the suburban town or residence parks are neither flesh, fish, fowl, nor good red her-



THE VERY ATTRACTIVE DINING ROOM.

influence from the outside fails to reach them, fails to affect them any more than the wind and storm-waves disturb the wrecks cradled on the ocean's floor. Occasionally, to an individual among benighted city dwellers comes a voice or a written word, like a diver to an isolated treasure-hulk, which sets in motion influences that eventually carry

ring. We wanted something "truly rural;" and so we picked out a spot not only rural, but absolutely bucolic—where there was neither railroad nor trolley line, where there was not much likelihood that any would ever be and where, in any direction, it was more than two leagues to a railroad station. And here we built, much of it with our

own hands and all of it after our own devising, a log house, which we call FYLFOT.

The name, I take it, has little significance for the great majority; and yet it is good old English for a sign that is universally known and used—commonly called the swastika, the good-luck sign. There was nothing hap-

that the idea of making the house a sort of museum of the fylfot commended itself to us. A typical item of information which I ran across in a "yellow" paper one day was to the effect that the symbol was the Indian good-luck sign and that it was called after an Indian chief named Swastika! The writer of the paragraph evidently recognized no incongruity in the San-



IN THE LIVING ROOM.

Note the unique fireplace with motto: "Here ends the Road that leads to all Good Comfort."

hazard about the selection of the name; for years I had been interested in the history of the sign, and in the building and furnishing of a home was afforded the opportunity to use the symbol not only as a *motif* of decoration and design, but also, in a small way, as a means of education. Since the sign has undergone a renaissance into popular favor, I have heard and read so many absurdly ridiculous things about it,

skrit nomenclature being applied to an American Indian.

So, in order to set this little matter forth in as true a light as possible, to show the universality of the sign and that, whether it has been indigenous to many peoples in many lands, or whether the world-wide manifestations of it hark back to a common origin in the misty years of unwritten history, whether it has been used as a secular amulet or a

religious symbol, it has always and everywhere and under all conditions of usage retained its original intent of auspiciousness and happy augury, we have collected in this house of the FYLFOT, and are still collecting, from widely separated sources, manufactures and artifacts bearing the sign: temple-doors from China, blankets and rugs from southwestern United States, wood-carvings, bronzes, brasses and embroideries from India and Japan, rugs from Asia Minor, as well as works and treatises on the history of the fylfot or swastika.

Although, as I have but just said, the fylfot has generally been used as an amulet of good luck, its efficiency, in our case, has not been altogether proved, for there have been a great many worries and vexations in carrying to completion our self-appointed task; but in the final analysis we feel a personal satisfaction and pride in having accomplished something worth while, and our greatest luck is in an ever-increasing love and respect for our environing Mother Nature.

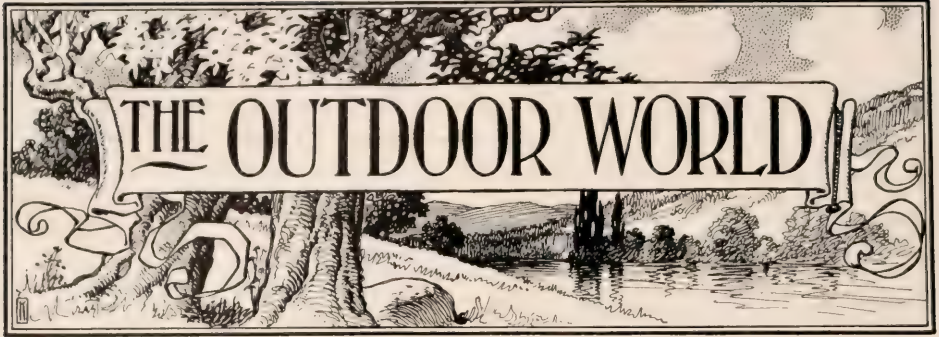
Cordially and sincerely yours,
WALTER P. TERRY.



SWEET CORN IS THE SWEETEST WHEN YOU
GROW IT YOURSELF.



MR. TERRY HAS FINE HORSES THAT RECEIVE LOVING CARE.



Maple Sugar Time.

BY HARRY G. PHISTER, VERNON, N. Y.

Maple sugar time! How the words call up memories of happy hours spent in the woods at this time of the year.

The whole operation of sugar making, from the tapping of the trees to sugaring off, furnishes good subjects for the camera, as the surroundings are usually of the most picturesque kind. Many of the sugar camps have a shanty built over the pan for protection in stormy weather, but I have been fortunate enough to discover several

where the boiling is done in the open. These are the only ones which it is possible to photograph satisfactorily, as when the sap is boiled in a shanty the steam so fills the interior that it is impossible to get even a flashlight.

The accompanying illustrations will give the reader an idea of the process.

No. 1 shows the gathering of the sap with team and mud boat. It is then taken to the boiling place and strained into a tub which is set up at one end of the pan. A faucet at the bottom allows a small stream to run into the evaporating pan, the syrup being drawn off at



NO. 1—GATHERING THE SAP WITH TEAM AND MUD BOAT.



NO. 3—A TYPICAL MAPLE SUGAR CAMP.

No. 2—A "MAPLE SUGAR PARTY."

the other end. Sugaring off is usually done at the house.

In No. 2 we see a "maple sugar party" that has arrived at the camp prepared to spend the day.

No. 3 is a typical camp with a shanty for protection from cold or rainy

weather, and No. 4 shows the sugar-maker stirring the fire.

The first run of sap always makes the best sugar. After the warm weather begins to swell the buds, the flavor is not so good and the color becomes darker.



NO. 4—THE SUGAR MAKER STIRRING THE FIRE.

The Revelry and Ecstasy of Life.

We talk about "the mystery of death." We refer to it in sad, sepulchral tones with ominous countenance! There is no



THE MAPLE BUDS, BEFORE AND AFTER THE TOUCHES OF "THE SPRITE."

mystery in death. It is the simplest, most easily understood, most natural thing in all this world. It is the ultimatum under which all things exist undisturbed and unaided.

But what is this meddlesome, enlivening, upsetting thing, this sprite, magic, miracle, this really and truly great mys-

tery, in revelry and ecstasy, that we call life. Here it comes riding on the sun's rays, dancing in every drop of moisture, telling us that it only is new and mysterious. How lightly it touches and adorns and transforms. It is both magician and musician. From here and there come the notes of the soprano tree



THE MARVELOUS UNFOLDING OF THE CATKINS.

tops, the alto branches, the tenor fences, the basso profundo of the frog pond.

The patches and clusters of the earliest flowers blend their whiteness with that of the snow. The flushing of the willow twigs is the result of nature's first flourish of her paint pot—just a light brushing in anticipation of deeper tints and colors of later spring and summer. The scattered notes finally blend in an anthem of joy.

my! Oh, my!" But what was there in the catkins to produce such a mental explosion? Only the key that turned the lock that opened the gates of memory through which the elderly man entered alone into the King Solomon mines of an almost forgotten boyhood.

Only some fuzzy willow catkins, and yet they softly brushed away the cares and perplexities of the whole day.

"Peace, perfect peace," they said, much



THE WILLOW CATKINS. "ONLY PUSSY WILLOWS"—HOW TRITE; HOW STUPENDOUSLY MIRACULOUS.

And the busiest culler of it all is this sprite, this revelry and ecstasy that we call life.

Only the graceful, peaceful alder catkins above the marsh, beautiful enough to make an elderly man scream—no, he wanted to cry aloud but he resisted the temptation toward such hysterical expressions of delight in the presence of his fellows in the trolley car and all that they heard from him was a compromise, "My,

better and more effectively than the sonorous singer who sang of death.

Only the opening maple buds, stimulated by the sunshine, yet they were incentive to increased life and activity. In them was the joyful suggestion that even in their brief season they are permitted to be helpful of future generations of buds and blossoms. Shall any member of our great human brotherhood be less than a shrub or a tree?



THE UNFOLDING OF THE HICKORY BUDS.

A Shower of Water Bugs.

BY R. A. SELL, ALTON, IOWA.

(Continued from page 434, February number.)

Belostoma americanum is the scientific name, but they are popularly known as Giant Water Bugs or Fishkillers: in some localities as "Electric light bugs."

They are the largest existing bugs—the largest found on this occasion measured three and one-fourth inches—and have an oval outline, flat body, and branch head. The front pair of legs are of the raptorial type, being strong, incurved with processes on the inner surface of the tibiae and terminated by hoof for seizing and holding their victims. The middle pair of legs is adapted for clinging and swimming while the hind pair is modified to form powerful swimming organs.

The mouth parts include a strong beak composed of four hollow joints through which four strong bristles, a little longer than the tube can be brought together in a point, thus forming a powerful piercing organ for stabbing the prey, from which all the blood is sucked before it is let go. They in-

ject a poison through this beak which paralyzes the victim. In this way they destroy fish, tadpoles and other insects. Great damage may follow the introduction of these bugs into fish culture establishments.

As they breed and develop wholly in the water and their metamorphosis is incomplete their life-history is not well known.

When they leave the water they are seldom able to get back again. The causes which bring large numbers of them out of the water to be attracted to their death around the electric lights are subjects of speculation.

The Symphony of Life.

I know not how it is with you—

I love the first and last,

The whole field of the present view,

The whole flow of the past.

One tittle of the things that are

Nor you should change nor I—

One pebble in our path—one star

In all our heaven of sky.

Our lives and every day and hour,

One symphony appear;

One road, one garden—every flower

And every bramble dear.

—Robert Louis Stevenson.



Are Present Standards in Goldfish Desirable?

BY WILLIAM T. INNES, PHILADELPHIA, PA.

That the general quality of goldfish now bred and shown is distinctly inferior to the exhibitions of several years ago is a fact only too plain to those in a position to judge. There are several causes for this, one of the most important being the present disregard of desirable, consistent and definite breeding standards. We are trying too many things and not concentrating on anything in particular. In any field of endeavor this makes poor results. We are lacking in clearly fixed and practical ideals. The final result in all kinds of breeding, from plants to man, is the bringing into existence of the ideals of the breeder, but as soon as ideals go, results deteriorate. The Chinese and the Japanese, not only for a lifetime, but for generations, father to son, bred to definite standards. That accounts for their wonderful success in developing the common red carp up to the goldfish of to-day with all its great variety of form and color.

The Chinese are a people fond of the grotesque—a kind of beauty in ugliness. They also have a great love of color. These characteristics naturally led them to breed goldfish grotesque in form and extraordinary in color—color which we seldom if ever see here. An extremely fine importation by a dealer in this city some fifteen years ago gives us a hint of what the Chinese have cultivated in eyes and color, for of course it is the telescope goldfish to which I refer.

We really have great opportunities in breeding when it is considered that we have at our command the results of centuries of patient labor and study

on the part of the Orientals. It should be for us to go on and improve the breed or at least to equal the best that has been done.

Now we come to the failure of the American properly to grasp what might be called the artistic conception of the telescope fish. As I have said before, the idea is one of the grotesque—a kind of hideous urchin of the aquarium, beautiful in its ugliness, if you are trained to see it in that way. Nine people out of ten on first seeing telescopes are horrified. The telescope true to these lines has a rather long body, medium or rather short fin development, double anals, divided caudal fin, or tail, immensely over-developed eyes, colors black, bright red or highly mottled. Of recent years we Americans have been trying to give to the telescope a quality entirely foreign to it and absolutely inconsistent with its style. This is the quality of elegance. It is right to breed for elegance in the right place, as we shall see later, but the telescope fish is in style the exact opposite of the elegant and any effort to mingle such opposites can only give results that are neither one thing nor the other.

This changing of the telescope has been in breeding for large fin development and short body—two points clearly belonging to the ideas of grace and beauty. In working for these points eyes and particularly color have fallen by the wayside. We have also produced a fish that has everything against it physically. The Chinese telescope with its great, bulging, nearsighted eyes, combined with the weakening influence of inbreeding, had trouble enough to keep alive. But combine with these disadvantages those of over-

development of fins, together with the air-bladder, spawning and intestinal difficulties that go with short-bodied fish and you have a creature so weighted down with handicaps that for it life is not worth living and as a rule it is not long before it takes to salt baths and a quick finish. "A short life and a sad one" might be its motto. The short life and early loss of reproductive power on the part of the males account in large measure for the difficulty in breeding large quantities of young from which to make selections, thus giving us less and less opportunity to make experimental combinations. There is no physical disadvantage to the fish in being bred for color, but with longer bodies and shorter fins we should have a strain of fish with longer lives, better breeding qualities and a perfectly consistent standard of beauty, together with possibilities of color development such as most fanciers of today have never seen.

The fish which is truly and legitimately graceful and elegant is the Japanese fringetail. The Japanese are no doubt the most artistic people in the world and it was they who realized the possibilities of the beauty of a short-bodied fish with flowing and graceful fin development. With this fish too we have recently fallen behind, partly because more attention has been given to telescopes, and partly, it seems to me, because the scaled fish has gone out of fashion. Personally I very much enjoy seeing a good scaleless fringetail, but it is not what I call a practical fish. The scaleless fish has fins so weak that the dorsal cannot be held erect after it has reached first-class development, and the long tail usually hangs in a string instead of gracefully flowing behind the fish. Usually the fin development during the first year is not sufficient to be considered handsome. In the second year the fish looks its best, for the fins have become larger and in some cases are not yet broken. In the third and fourth years, when the fins should be at their best, they are in the scaleless fish almost invariably dragged and broken. With the scaled fish this is not so apt to be the case. The fins

are much more strongly ribbed and are carried in good form for several years. I do not want to make it seem as though the good old days are all past, but it is a fact that we do not now see the very high, sail-like dorsals and the extremely long and good-conditioned tails of a few years back.

The best fin development is acquired at from three to four years of age, but if the fins at this age are not sufficiently firm to maintain their form, it hardly seems to be worth while. Furthermore the scaleless fish is weaker and more sensitive to cold, and by breeding the scaleless fringetails together the depth of color is gradually lost. The fish with scales mottled red and white or solid red is very pleasing in color and possesses so many advantages over the scaleless variety that it should be rescued from the inattention into which it has recently fallen.

One of the principal ideas that has lately taken hold of the fancy is the broad tail in both telescopes and fringetails. The broad tail is by no means new but it has within the past three, and more particularly the past two years, caught the popular eye. The broad tail has a beauty of its own, but this should not lead the judge in our competitions to award the ribbons to this class unless they are superior in other points. Experience seems to show, although in this I am not entirely certain, that broad tails are more difficult to keep alive, and the males are certainly less effective breeders, owing to the difficulty they have in swimming rapidly. These are serious considerations and should be borne in mind when one is deciding what stock to purchase or to breed.

I am not in favor of clinging to old standards because they are old, but it seems to me that we should adhere to them until we get a better ideal for which to work. Above all, if we have new ideas, let them be consistent. We do not want merely to create a freak fish. If we continue on the present lines it would not be surprising if some one should show a hooded variegated fringetail telescope without dorsal—everything and nothing in one.

The fringetail telescope is just as inconsistent a creation as would be a long-tailed bulldog on a short-haired collie. In telescopes, let us again have colors and eyes, and in fringetails, fins and form.

Goldfish Pull Up Plants.

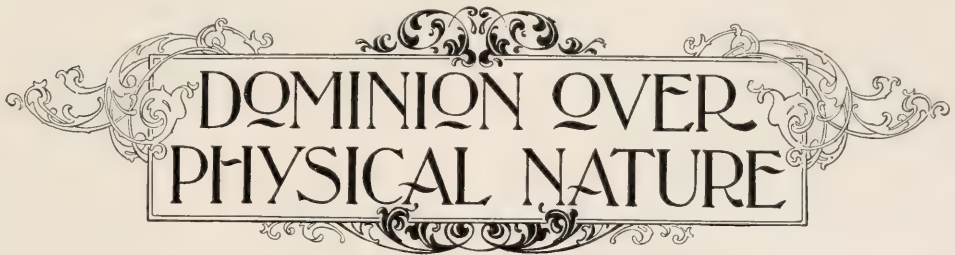
An inquiry from a member of The Agassiz Association as to the best method of stopping goldfish pulling up plants was referred to William T. Innes, Philadelphia, Pennsylvania. He has written in reply as follows:

"It is generally large, single-tail goldfish that pull up plants. I know of no way of breaking up the habit. The best thing to do, if one does not wish to dispose of the fish and get smaller ones, is to plant giant *Sagittaria* and

plant it deeply, spreading out the roots well. The broad, strong leaves of this plant are more difficult for the fish to get hold of and the roots are very firm when once established.

"Fish sometimes learn they can up-root plants that have not been planted thoroughly, and after they once get the idea the only way to get ahead of them is to go beyond their strength. Plant giant *Sagittaria* down against the bottom and cover the roots with one and one-half inches of sand.

"Do not use seashore sand. It packs too hard and the plants do not prosper. Silver sand as used for bird cages is pretty but river sand will do, or any kind that is not very fine. Bird sand is clean and white and where the quantity required is not large, the outlay is well expended."



How a Motor-Boat Engine is Made. Description of a Two-Cycle Motor.

BY EDWARD F. BIGELOW, SOUND BEACH,
CONN.

A motor-boat is always fascinating. It glides through the water so swiftly that the speed appears to be the work of magic. Even the regular "chug, chug, chug" of the engine seems more like the voice of some mysterious, aquatic animal than like the sound of other engines, for, of all vessels, the motor-boat has its power the most concealed, the greater part of the engine usually being placed below the flooring of the boat, where it is invisible and out of the way of the passengers. Sails, walking beams or paddle wheels are conspicuous, but a motor-boat, with none of these in sight, seems to be towed by some mysterious, submarine animal.

From the mechanical point of view a motor engine on account of its regular sparking from an electric current and its rhythmical gas explosions is interesting. For these reasons our readers may like to know how a motor engine is made and how it operates.

It consists primarily of an iron box, known as a cylinder, within which plays back and forth a "plunger," known as the piston attached to the piston rod—the whole being known as a piston and rod.

The backward and forward movements of this piston are produced by explosions of compressed gasoline vapor, mixed with air, the explosions being caused by an electric spark, and the spark made in the gas in the cylinder by the sudden breaking of the electric current through each revolution of the fly wheel. The explosion of this

gas acts on the piston as the powder on the bullet in a cartridge. The force

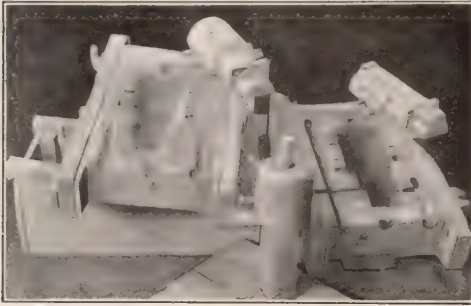


Fig. 1.—Two halves of flask, *A* and *B*, containing the moulding sand, showing the forms of the patterns, *C-C*, just removed. These two flask halves are put together, leaving the form of the cylinder inside. The molten metal is poured in through holes left for the purpose and allowed to cool. The flask is removed and the sand knocked away, leaving the rough casting as seen at *D*.

would shoot the piston from the cylinder, as the bullet is shot from the cartridge, if it were not fastened to the crank shaft carrying the heavy balance wheel which is set to spinning. Charges of gas are continually admitted to the cylinder at the proper intervals and there exploded. This keeps the wheel rapidly spinning until the gas is

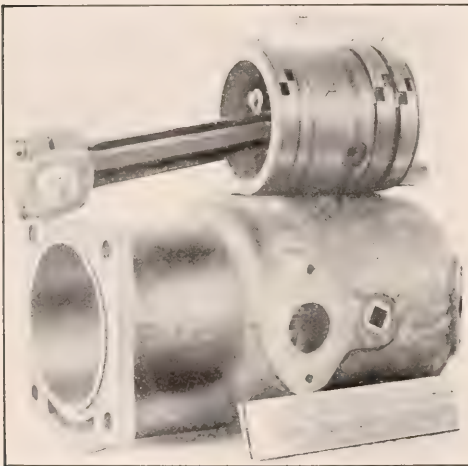


Fig. 2.—*A* is piston head; *B*, the piston rings which by their springiness maintain gas-tight contact between piston and walls of cylinder. *C* is piston rod; *D*, cylinder. These pieces are finished ready for putting together. The rule is to show comparative size.

shut off or the sparking stopped by throwing off the switch.

Such an engine belongs to those of the internal combustion type, in which the fuel is burned in the cylinder instead under a boiler.

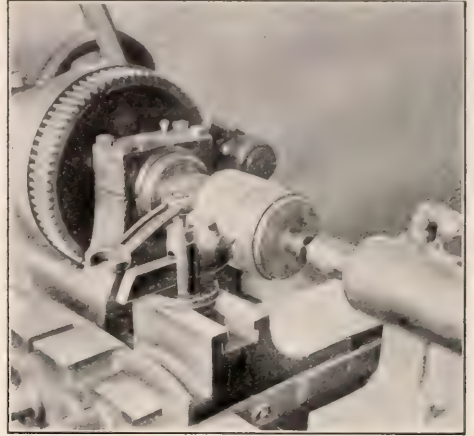


Fig. 3.—Lathe "turning off" the rough exterior of piston and bringing it to exact size and form.

In the factory the first process is to cast the crude iron into the form of cylinder, piston and other parts needed.

For casting, a smoothly finished pattern of wood is made, cut in two and the halves firmly laid in a mixture of sand in a box called a flask. This mixture is carefully packed around the pattern and smoothed out by delicate instruments made for that purpose. Every fragment of loose sand is then blown away by the aid of small bellows.

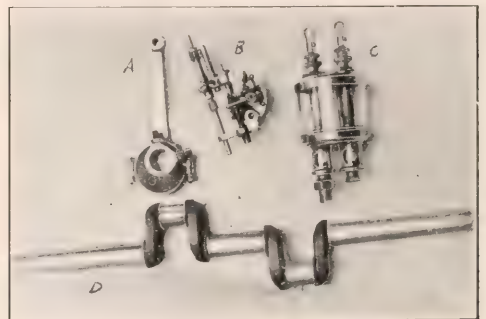


Fig. 4.—Some of the parts of the engine: *A*, eccentric and rod; *B*, make and break sparker; *C*, oil cup; *D*, crank shaft.

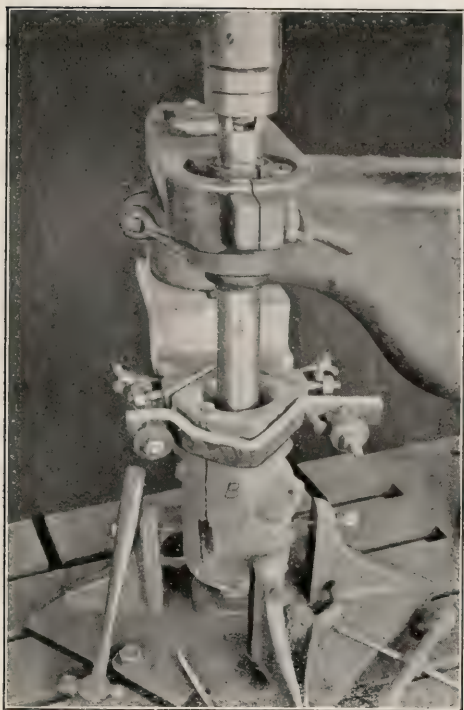


Fig. 5.—Operation of boring cylinder. *A* is the boring bar, the cutting tool of which is hidden by cylinder, *B*.

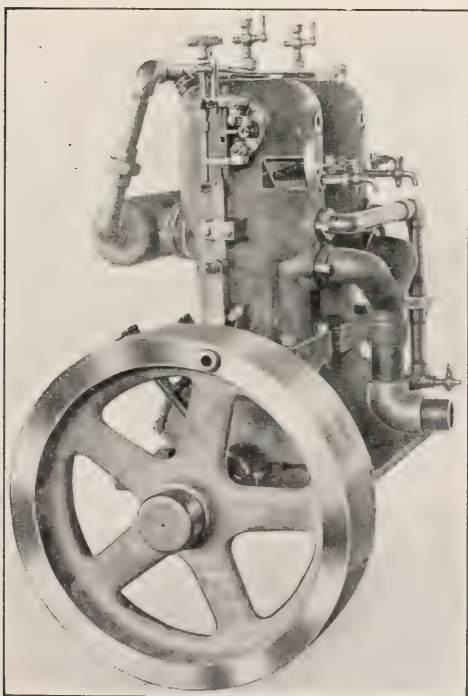


Fig. 6.—Engine assembled ready for installation in boat.

Each half of the pattern is lifted from its "bed" and the two hollowed parts are placed carefully together with a core, for shaping the interior, in the centre. The molten iron is poured in until it entirely fills the place from which the wooden pattern was taken.

The next step is to take this cylinder to a boring mill where its inner surface is made perfectly round and smooth.

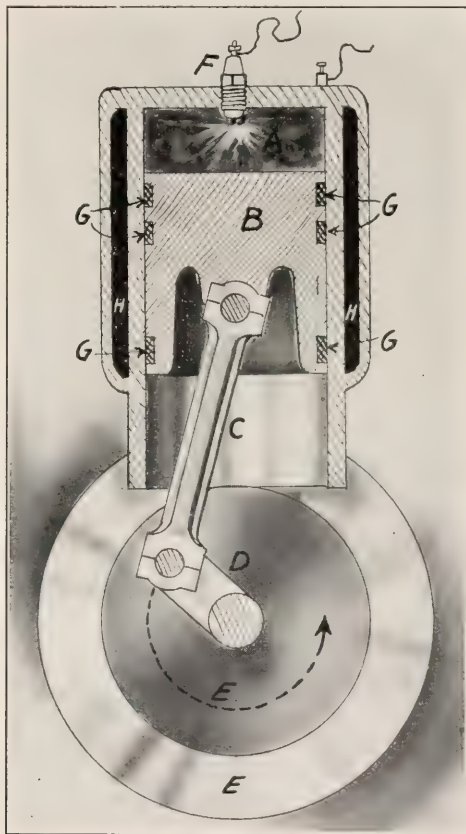


Fig. 7.—Ordinary gasoline is vaporized and mixed with the proper proportion of air in a carburetor (not shown here) and admitted to the explosion chamber (*A*) while the piston (*B*) is at its lowest position. When the piston returns the gas is compressed. When the piston has reached its highest position and just as it starts down, the gas is exploded in the chamber (*A*) by an electric spark from spark plug (*F*). The straight motion of the piston is converted into circular motion by the connection of the piston with the balance wheel (*E E*), which is spun around in direction of dotted arrow. The propeller is connected with the end of the shaft on which the balance wheel is fastened. The piston rings are shown at *G*. As the cylinder is made extremely hot by the exploding gas, it must be cooled. This is done by pumping cold water through the chamber (*H*) which surrounds the explosion chamber.

The plunger, similarly cast, goes to a lathe where it is smoothed on the outside. The crank is then added to the piston, and held firmly in position by clamps, bolts and nuts. Steadiness of motion is given to the revolutions of the crank by a heavy balance wheel.

Another ingenious device, known as piston rings, is around the head of the piston where it is intended to prevent the escape of gas from the chamber of the cylinder in which it is exploded; that is, so that all of this force must be used to move the piston.

The revolutions of the crank are applied to a rod or shaft, on the end of which is a wheel with blades that push the boat forward as the wheel rotates in the water.

Each revolution of the fly or balance wheel makes a break in the electric current that causes a spark; the electric spark explodes the gasoline vapor over the piston; the force of the explosion moves the piston; the piston transfers the movement to the crank; the crank carries it to the rod or shaft connected with the propeller wheel in the water.

For aid in the preparation of this article, the writer is indebted to Palmer Brothers, Cos Cob, Connecticut.

The Sextant.

BY MORRIS W. LEE, HOBOKEN, N. J.

The problem of the explorer in tracing his way over a barren and uncharted territory is to continually pursue the most direct path to his desired destination, and thus conserve his energy and supplies. On account of the absence of familiar landmarks or other form of information, he must rely upon the relative position of various heavenly bodies to the earth in order to determine his latitude. This relative position may be determined by observations with the sextant.

The method usually employed is to take an observation upon the sun at noon, which is the moment it reaches the greatest elevation above the horizon. On land, such an observation may be made by means of a fine engineer's transit or theodolite, but at sea a sextant must be used because of the ship's motion. The adaptability of the sex-

tant for use on land or sea makes it specially valuable for explorers.

The sextant is so named because the graduated arc of the main frame is one-sixth part of a circle. It is a reflecting instrument, depending for its use upon the following optical principle: "When a ray of light has undergone two reflections in the same plane, the angle between the first and last direction of the ray is equal to twice the inclination of the reflecting surfaces to each other." This, while it may seem a little complicated, is in reality a very simple principle, depending upon the well-known fact that a ray of light leaves a mirror at the same angle that it strikes its reflecting surface. This is ordinarily stated, "the angle of incidence equals the angle of reflection."

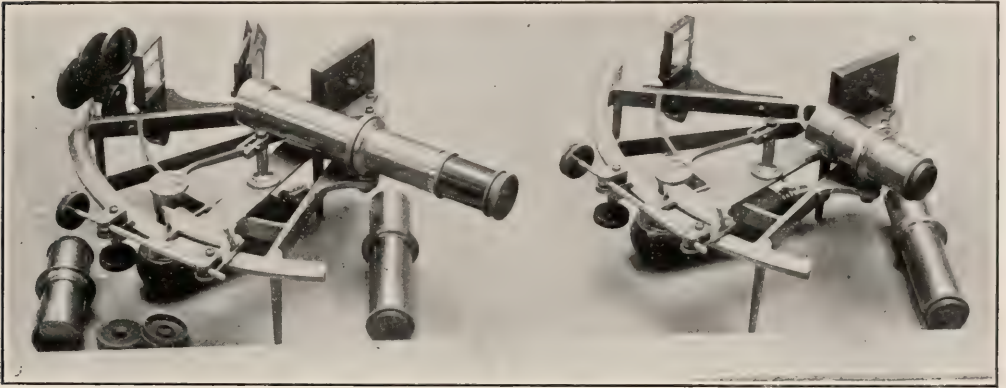
The sextant consists briefly of a main frame carrying the graduated arc, a movable index arm with the index mirror at its pivot, a horizon mirror on the main frame and a telescope through which the sights are taken. In addition to these main features there is a handle suitably placed for holding the instrument, a vernier with magnifying glass for reading the arc very exactly, a slow motion screw for moving the index arm, and two series of colored glasses to be placed between the observer's eye and the sun. The horizon mirror is silvered on one-half of its surface only, so that in looking toward it through the telescope one sees both the object which is in the direct line of sight and the reflection of some object which is at another angle.

To measure the angle between the sun and the horizon at sea or on level sea ice, the observer holds the sextant vertically in his right hand, looks through the telescope at the horizon through the clear part of the horizon mirror and by swinging the index arm about its pivot, brings the reflected image of the sun so that its edge appears to touch the horizon line. The reason for using the edge of the sun's image is that a more accurate measurement can thus be obtained than by trying to judge its center. Such an

observation is then corrected for half the sun's known diameter.

As the image of the sun is reflected first by the index mirror and from it to the silvered part of the horizon

then double its angle of elevation above the horizon. The actual elevation above the horizon is thus readily obtained and may be used for calculating the latitude.



MARINER'S SEXTANT.

LAND SURVEYING SEXTANT.

Illustrations and article by courtesy of the Keuffel & Esser Company, New York City.

mirror, the rays which reach the eye have undergone two successive reflections. Therefore, according to the principle of the instrument, the angle between the two mirrors will be just one-half the angle between the sun and the horizon. The arc is so graduated that the desired angle may be read directly upon it.

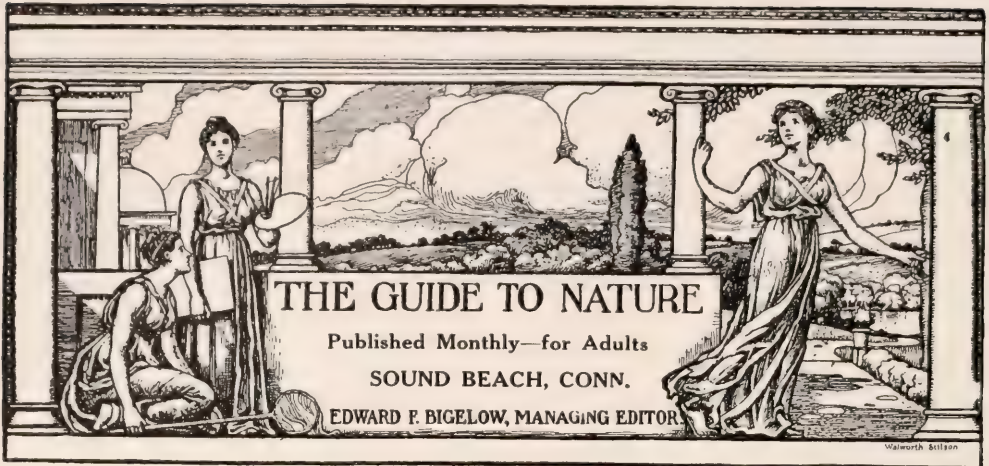
It will be readily understood that the sextant must be constructed and used with great care, as a very slight mistake in its graduations or in taking the observation will cause an error of several miles in the calculated location of the observer. Of course, a fixed star may be used for an observation in the absence of the sun.

On land, when the horizon is not clearly defined, it is necessary to use a contrivance known as an artificial horizon. This device is made in two forms. One is a plain reflecting surface with a level vial and screws by which it may be set exactly level. The second and better kind, consists of an oblong trough filled with mercury and protected from the wind by a roof having in either slope a plate of glass with its two surfaces ground to perfectly parallel planes. The angle between the observed object and its reflected image seen in the mercury is

Maud and the Aeroplane.

Maud Muller, on a summer's day,
Was in the meadow raking hay.
She always had enjoyed good health,
But had a hankering for wealth.
Her cheeks were red, her eyes were brown;
She longed to live in the far-off town.
She wished she might be richly dressed,
And circulate among the best.
The judge came sailing up the lane,
Upon his nice, new aeroplane.
Below him he beheld the maid,
And tried to stop, and swooped and swayed.
He ripped a top rail from the fence,
And talked as if he had no sense.
The engine got beyond control,
The judge lost his immortal soul.
Maud stood there with a sickly grin,
Until he hit her with a fin.
"My Lord!" she yelled, and ducked away;
The judge lit on a pile of hay.
She hurried where the spring gushed up
And filled her little old tin cup.
At first she thought the judge was dead,
But she splashed the water on his head.
He looked upon his aeroplane
And said some things that gave Maud pain.
At last he rose, and with a frown
He started for the distant town.
Then, bringing himself to halt,
He said, "This, girl, is all your fault.
"If you had not been raking here,
I'd have stayed in the atmosphere.
"You've cost me dear and spoiled my sport;
I'll fine you for contempt of court!"
He then went onward up the lane,
And Maud returned to work again.
She gazed upon his wrecked machine
And said, "Alas! what might have been!
"Ah, well, in heaven we'll all have wings!"
And not depend on such fool things!"

—Chicago Record-Herald.



To Regulate Vivisection.

I have been giving careful attention to the subject of vivisection, and before beginning a campaign of opposition, I have taken the precaution to fortify myself by a considerable armament of data. I firmly believe, however, that vivisection cannot be wholly abolished at the present time. Neither could many other human evils even if millions of dollars should be contributed and general conventions be held every week. Do not be surprised that I write in this way. I know that the opposition is too strong for me, but I know further that vivisectionists and anti-vivisectionists, although at present their views are antagonistic, can meet on a common ground that both will approve. They can check the present evil and make it less offensive and more humane. I am looking forward to the total abolishment of vivisection. The first step toward that end is to reduce the amount. This can be done at once if we can have the cooperation of all those interested. The great evil of vivisection is not observable in the few places where it is done in a thoroughly competent manner, but it is the fact that any upstart student may and often does repeat over and over again experiments that have been made many times and with results that can never be changed. The most devoted advocates of vivisection deplore this as much as its opponents. Even boys are making ex-

periments in vivisection, and doing so with unspeakable cruelty.

Do not let us be extremists, but let us get to work and have enacted a law that will put all vivisection in the care of a competent Board of Inspectors. When this is done it will be necessary for the one who wishes to experiment to make known in advance the purpose of the experiment and afterwards to report results and methods.

Please cooperate with me in this good work, for I firmly believe that within a short time we can accomplish much toward restriction of the evil.

"The Condor" Discards "Simplified" Spelling.

The editors of *The Condor*, a magazine devoted to the ornithology of California, favored "bobtail" spelling. They tried it for a few months, as has been previously noticed in this magazine, but received so many protests that they called for a vote by the members of *The Cooper Ornithological Club* which publishes *The Condor*. The vote was emphatically against its continuation. Now we are delighted to find that this interesting exchange can be read without reference to a Josh Billings's dictionary. Accept our felicitation, brothers. You have done well in returning to the use the language as it is "according to nature," and you have gracefully accepted the inevitable. Felicitation, brothers, felicitation.

The Belgian Hare as a Money Maker.

This is the title under which William J. Bailey of Clyde, Michigan, writes an extended article in "The Inland Poultry Journal." We quote the gist of the essay:

"Many boys in the country can make money by raising the hare, as the following statement shows:

"Take fifteen or twenty Belgian does, with proper hutches for breeding them, will produce, each doe, fifty or more in twelve months. Now, twenty does raising fifty hares each year, makes 1,000 in one year. These can be fattened to weigh at six months old, six and seven pounds each, and will sell for more than poultry."

Here follow extended details as to hutches, but not a word as to cost. Then we have the conclusion:

"It will be seen that a person with a few hundred dollars to get a few acres of land, and to build a house and yards and to purchase breeding stock and feed, can make money fast on a small investment. The wonder is that many more persons are not in the business, for here is a chance to make lots of money."

From this it is evident that the pernicious teaching of the easy getting of wealth from the Belgian hare is still exploited. We had supposed that the fallacy had been fully demonstrated and in sorrow, by some who were urged to invest all their savings in this way and who lost nearly, if not quite, all.

A few Belgian hares, if you really love them, are worth while because they are interesting and some people like to use the superfluous stock for the table. But as money makers in which to invest your "few hundred dollars to make lots of money," think twice, yes, three times, before—and then, don't do it, for the simple reason that no one except the breeders who successfully "worked" the starters with fancy priced stock ever has done it.

But Belgian hares, in themselves, as a fancy are really worth while—if you like them, and especially the care of them.

Nature Study Can Stand Alone.

The study of nature whether for recreation or education is not a "pill" that needs a sugar coating, neither is it a weakling that needs the prop of some apparently stronger things. It is strong in itself, it can stand alone, it is not tiring, it is delicious and not nauseating. It is always worth while for itself.

Of course, there may be the comical hypocrite who seems to need some excuse to console himself in these pursuits; as, for example, the suburbanite who really, in his limited time at home from the office, wants to get as near to nature as possible by keeping a small flock of chickens in the back yard. Now he doesn't dare to come right out and say, "I love those chickens for themselves," for that would seem childish, but he shows his love for them by actions and plays with them in his spare moments as would a child with a toy. But in a "manly" and businesslike way he talks about the pounds of meat and the eggs he has obtained for his family at so great a saving of butchers' bills. He enters into statistics and finance and tells you of the sin of wasting the many scraps that fall from the table. He, of course, would not be so childish as is little Estelle when she goes over to Julia's house to play dolls and cut papers, and carries her best and most loved dolls and her paper cutting apparatus. No, that would be very, very childish, and he is a big, big man. Instead of that he takes his largest rooster and sleekest hen and meets several of his chummy playfellows in the play room of the Madison Square Garden and talks dollars and cents, and cuts and carves to his heart's content and the delight of all the boys there gathered, and sometimes a girl or two, though that really must not be admitted openly because it would be too effeminate. He takes them down there professedly to win some cash, but really and practically right down deep in his heart he is there to play with his beloved toys.

The learned professor or the expert mycologist who has made a lifelong

study of his favorite subject does not, of course, go to nature for herself, but he goes to save his butchers' bills. Never mind if he is a professor who is receiving eight thousand dollars a year, or a business man whose time is worth two or three dollars an hour. It is a great, practical saving if he goes out and tramps with four or five assistants whose time is as valuable as his own, and brings home mushrooms that are equivalent in a pecuniary value to perhaps a pound of beefsteak that would cost some twenty-two or twenty-three cents. It would not be manly to have gone for the sake of going. This harmless, laughable, little hypocritical deception is very nicely stated in the following by Dallas Lore Sharp:

"And the collecting of mushrooms is, after all, their real value. Our stomachs are too much with us. It is well enough to beguile ourselves with large talk of rare flavors, high per cent. of proteids, and small butcher's bills; but it is mostly talk. It gives a practical, businesslike complexion to our interest and excursions; it backs up our accusing consciences at the silly waste of time with a show of thrift and economy; but here mushroom economy ends. There is about as much in it as there is of cheese in the moon. No doubt tons and tons of this vegetable meat go to waste every day in the woods and fields, just as the mycologists say; nevertheless, according to my experience, it is safer and cheaper to board at a first class hotel than in the wilderness upon this manna, bounty of the skies though it be.

"It is the hunt for mushrooms, the introduction through their door into a new and wondrous room of the out-of-doors, that makes mycology worthy and moral. The genuine lover of the out-of-doors, having filled his basket with fungi, always forces his day's gleanings upon the least resisting member of the party before he reaches home, while he himself feeds upon the excitement of the hunt, the happy mental rest, the sunshine of the fields, and the flavor of the woods."

Another insidious, subtle and yet none the less pernicious foe is in the teaching of nature in the school room. It is the outcome of this half-heartedness of teachers whose consciences are never quite satisfied as to whether nature is really worth while or not. It is not perhaps so much their ineffective methods of teaching as it is their half-heartedness, and uncertainty.

Or perhaps they are honest in the belief that nature is really worth while, but they feel that they must have an excuse or a mask under which to present the subject to the practical voters of the district and to the matter-of-fact school supervisors. So they have tried to dodge the main issue as a matter of diplomacy and are calling it "elementary agriculture" because forsooth that will make good farmers who can earn a better living, or they are interested in birds and talk openly of all their heartfelt love of birds and how humanity will go to the demnition bow wows if we do not stop killing the birds, or we shall be eaten up by insects, and how all foods will triple and quadruple their cost if we do not stop killing the money-saving and money-earning birds.

Bosh! Away with all this sham; go at it openly and frankly. I detest hypocrisy in nature study as much as in any other phase of human action. Here is a new magazine. It comes to us with a charming bit of sentiment and of general inspirational value but the editor, bless his dear heart, is a little afraid to come out and say, "Here is something that shall portray to you what nature really means to you." Though he calls it "Nature and Culture" he conspicuously prints as a motto on the magazine, on his letter heads and even on the advertising rates, "Save the Birds or Lose the Trees." It is euphonious, well balanced, epigrammatic and in good English. But we seriously object to it because it cloaks a pernicious doctrine. The birds are worth while in themselves whether we have trees or do not have trees, and whether the insects eat us up or do not; the cultural value of nature is not in the dollars nor the trees which

it saves, but in the inspiration and uplifting of life. This, alas, is a practical age but life is now as ever more than money.

Amidst all these enthusiastic hypocrites, who delude themselves and the public, amidst all this veering and wavering from the main point, it is refreshing to discover one solid rock of frankness and common sense. These thoughts were inspired by reading "American Education" by Andrew S. Draper, Commissioner of Education of the State of New York. I commend what he says in the following to every economic or self-deluded naturalist and teacher:

"Much is heard about nature study. Its value is recognized. It is good. But it is equally good for all children, as cutting paper, and weaving mats, and moulding clay and the like, are good for all children. All of these things make for all-round culture, for all-round outlook, and for all-round love for work and for facility in doing. Nature study is quite likely to appeal less to the country child than to the city child, for obvious reasons, and while it is to be encouraged in the country as in the city, it apparently has about the same relation to real agriculture that sloyd has to laying out an electric plant for a city, or laying down the keel for a battleship. In other words, it is a good thing,—a good thing everywhere, because it helps mould the character of boys and girls, and keeps the way open for what may come after, but calling it agricultural instruction will not increase its importance so much as it will confuse some minds and subject us to the criticism that we are not doing what we proclaim.

"Enthusiasts want the teaching of agriculture encouraged in the elementary schools. It is difficult to determine, however, what are the phases of real agriculture which are adaptable to the primary schools or how to install them in a way that will dispose children to become interested in them. The children of farmers are likely to find interest in many things which look to quickening and dignifying the different

agricultural industries, which are not incompatible with the plan and purpose of the elementary schools and these things should be introduced into the course of study; but there is no more reason in teaching real agriculture in the elementary schools, than there is in teaching engineering or medicine. Agriculture is not an elementary subject.

"In some quarters the normal schools are asked to train teachers of agriculture for the elementary and secondary schools. Some of the normal school teachers know something about some of the sciences that are fundamental to agriculture, and some of them know something about some of the practical methods of farming. The fact is, however, that nine tenths of the students in the normal schools who will ever teach at all are girls. Doubtless it will continue to be so. Ambitious men who go beyond the high schools are going to the colleges. And the gods of the Greeks, mean and sordid as they were, would laugh at the spectacle of girl teachers training farmers' boys in the intricacies of real agriculture. Generations will come and go before there is any substantial result to agriculture through the girls in the normal schools."

When, Oh When?

When you have received either personally or by mail a sample copy of *THE GUIDE TO NATURE*, do not take the time and trouble to express your gratitude, but say, "Here's a dollar for a year's subscription."

When you observe the beauty of *THE GUIDE TO NATURE*, the care with which it is edited, its illustrative and mechanical excellence, when you learn of the faithful work, and the sacrifice of time and money by the editor and his co-workers, do not take more than three pages of your letter sheet to express your admiration. Use the fourth for a list of subscriptions that you have obtained or are paying for as presents to your friends.

It is then that the editor will be sure that you mean exactly what you say.

When, oh when, will you "tell" us the dollar or write us the list?

A Stone Wall Boulder Monument.

["Why publish this?" perhaps the reader will inquire.

My answer is, for the same reason that I photographed this unique monument of a boulder in the stone wall—because it has genuine, heartfelt, nature interest. This boulder is next to the woods in an isolated plot. It marks the resting place of one who lived near to nature, whose life in some respects was isolated from others and yet filled with large-hearted, genuine, human sympathy. It is published neither as an eulogy nor as a curiosity, but merely for the rugged nearness to nature and the pathetic, touching thought for which it stands. Here rests the body of a man who tried to write poetry, but who unconsciously lived a matchless pastoral poem.

The following was written, at my request, by one who knew him well.—ED.]

The lives of men are like rivers;
some flow serenely along with nothing

little gravel path through the sumac and wild berry bushes that leads to the quaint little resting place of his ancestors. His step was not as firm as of old, and there was a slight stoop in his shoulders, but the same merry twinkle was in his eye. I spoke to him, and he turned and stroking his long, snow-white beard gazed toward the big oak that borders the river, and beyond to the golden sunset.

"Ah, is that you?" he said. "You see I am doing a little mason work now," he continued, gazing at the chisel in his hand. "I guess I am about at the end of the journey."

I knew where he was bound and what he meant, but the twinkle did not vanish. He knew he was approaching



HIS MONUMENT—A BOULDER IN THE STONE WALL.

to disturb the monotony; others rush turbulently through valley and over mountainside to the peacefulness at the end of the course. To the latter class belonged the man whose body rests beneath the odd tombstone on which he engraved his name.

It seems that only yesterday I last saw him as he wended his way up the

the inevitable end, but it was part of the game, and he knew how to play it like a man.

The mason work was:

VAN BUREN LOCKWOOD,

BORN OCT. 17, 1829.

The following summer,

DIED JAN. 29, 1905,

was added.

To his relatives he was known as "Uncle Bue," and to his many friends as "Pa," and among his friends were men in all walks of life.

He started out in his business life, spurred by necessity and the usual youthful zeal. From the position of clerk in a grocery he went to New York. A few years later found him in Dixie in partnership with a photographer. One morning he arrived at the office to find that the partner and business had vanished. This was the time of the great gold fever in California, and within a year he was out in San Francisco, in business with another partner, who in this case proved to be his lifelong friend. He remained there but a short time, and came back to the scenes of his childhood. On his return he started a mercantile business, and was one of the foremost business men in Stamford. He was successful financially, but success in business life did not mean happiness to him. He had lost two brothers, and his wife, a woman of culture and education, was taken away and confined in a sanitarium. He sold out his business to travel with her, hoping that a change would keep off the dreaded illness. He was unsuccessful.

Heartbroken, he sought peace and comfort in the hills which surrounded the old homestead where he was born. Under the old maple tree which is still standing in front of the homestead he used to entertain me with reminiscences of his boyhood, and I would listen for hours to what to me were fairy tales. Often he would tell of the untold numbers of pickerel to be caught in the river, and how the woods were alive with game. Those were the good old days in New England when one could say with Whittier:

"Mine the sand rimmed pickerel pond;
Mine the walnut slopes beyond."

With children he was always a favorite, and the Christmas preceding his death he assumed the role of Santa at the entertainment at the little white schoolhouse in Roxbury.

Slowly but definitely the name on the stone suggested a little volume of

his poems which some one had tenderly collected and called "Sweet-brier Petals," and there we learned something of the life of one who, though dreamer and idealist, had somehow unconsciously blended the simple things of nature with the "big," little things of everyday life. What matter that his business career had brought him all kinds of success, all kinds of failure; that he had mingled with many people and traveled in distant lands? Thus simply he wished to be remembered.

In one of his stanzas he writes:

"Fiction and dreams are as nothing,
Reality drives all away."



And yet did he succumb to the reality he somehow confused with misfortune, or did the dreams rather become to him a beautiful reality unawares? He was hardly a naturalist and yet through all the poems (and he wrote only during the last retrospective years of his life) there is always an unconscious idealism of the little dwellers in the out-of-doors, a wonderful reverence for each inconspicuous blossom. The practicalities of life always asserted themselves, sometimes in humorous combination with the curious fantasies he wove about the life in wood and meadow. The lilac, he saw looking longingly in through the window where it was warm; it was the wild rose that wilfully made the little girl late for school; and even the clouds looked mockingly back at him as they floated away to the west.

It may have been some such unconscious mingling of the ideal with the real, of humor and pathos, that induced him to choose for a monument "as ancient as the sun," this sober grey rock on a Connecticut hillside.

He was always fond of—but probably it would only be fitting to quote from Grey's "Elegy in a Country Churchyard":

"No further seek his merits to disclose,
Or draw his frailties from their dread
abode:
There they alike in trembling hope repose,
The bosom of his Father and his God."

CORRESPONDENCE AND INFORMATION

Very Late Raspberries.

Indian Harbor: Greenwich, Conn.
To the Editor:

On page 395 of your January number of *THE GUIDE TO NATURE* Harriet E. Wilson reports having found raspberries on the twenty-second of September.

For many years past I have an *abundant* supply of raspberries of a late variety from about the middle of August to the latter part of October. I picked a handful this last year on the fourth of November.

Yours sincerely,
E. C. BENEDICT.

Two Interests of the January Number.

Cedar Rapids, Iowa.

To the Editor:

I have received your splendid number for the current month and desire to heartily congratulate you on the happy combination of interesting subjects and excellent pictures, and a combination, too, that is not only informing as to statement but pertinently suggestive along lines of further inquiry.

How natural the old mills look, and many will read Mr. Davenport's recital of their history with absorbed interest. It is to be hoped that this, the beauty spot of the town of Stamford, will be perpetually preserved in its pristine loveliness, and not be robbed of its spell and charm by the invasion of the house builder. The readers of *THE GUIDE TO NATURE* in Stamford should head a movement for securing to the town, forever and inviolate, this picturesque tract as a rural park, a resting spot for tired nerves, a place where the busy and hard grind of life is momentarily obscured by a vision of the

tangled wildwood and gleam of swirling water over a rocky bed.

I see, too, you show how amicably our cows and pigs get on together here in Iowa. That giving and getting of the milk you picture on page 379 is certainly a great object lesson for unity of effort amid somewhat conflicting elements. But Iowa is a great state and can do almost anything!

Sincerely yours,
GEORGE BENNETT.

Heretofore Studying in the Dark.

Evansville, Ind.

The Agassiz Association:

I received my certificate of membership and the back numbers of *THE GUIDE TO NATURE* several days ago.

I am surprised at the enthusiasm the "Hand Book" stirred up in me. I am naturally an observer of nature but after reading the book through, things look different to me. It has caused me to form systematic plans of study. Heretofore I seemed to be studying in the dark but now everything appears in a different light. It has caused me to go at my own work (that of making geological surveys) in a different way and perhaps in an easier way.

The lines of work which you can expect reports on will be geology and botany. I expect to study and classify all the trees that I can in this vicinity and broaden out as far as I am capable in botany. I did not take up botany while in college, but have studied it a little since, but always in the dark. I have now formed plans to take it up systematically. I have an excellent chance to carry on the study of botany in connection with my geological work.

Recently I purchased a plate camera, also a wide angle lens to go with it, so I am pretty well equipped for taking up nature study and recording it. I have had considerable experience with a camera. I can do a little at drawing or sketching both with pencil and pen, so that will help me out some.

Yours respectfully,
R. E. VANDRUFF.

This Dog is a Poser!

Bristol, Connecticut.

To the Editor:

I enclose a photograph (taken by Samuel Knight of this city) of a dog,



A SPORT PHOTOGRAPH TAKEN BY KNIGHT.

"Sport," the property of L. A. Gladding of New Britain, Connecticut.

Sport is about twelve years old and by race a Boston terrier, brindle and white and of medium size. He is one of the best known dogs in New Britain and a general favorite. His intelligence is quite remarkable. He esteems it a special privilege to sit for his photograph, having posed on other occa-

sions, and has been honored by having his portrait published in "Dogdom."

In the winter he occupies a large, corner, show window in his master's store, where the sunshine is very congenial to his sunny nature. He does his own marketing, taking the nickel that his master gives him every day to a near by market, where he purchases his regular supply of meat and returns with it to his master's store.

Sincerely yours,
MILO LEON NORTON.

Chipmunks and Mushrooms.

Saugerties, N. Y.

To the Editor:

I saw in the January issue of THE GUIDE TO NATURE the query as to whether a chipmunk eating a mushroom was indulging in a freak appetite or a familiar article of diet. From my observations of last summer I should say the latter.

During the summer camping in the woods I spent a great deal of time making friends with my many chipmunk neighbors, and soon was rewarded by having them come regularly each day up on the porch to be fed. The bolder ones would come as I sat at breakfast frequently jumping a foot or more from the floor, clinging to my hand with tiny claws while they extracted the bit of bread, prune-pit or other morsel tightly held between my fingers.

They soon grew to know that my apron pocket usually contained some dainty and would unhesitatingly climb into my lap, a moment later to be lost to view in the depths of my pocket, sometimes coming out to sit bolt upright looking inquiringly up into my face while tucking a last refractory morsel into the already bulging cheek pouches, then to dart away to cache their spoils, returning in a few minutes for more. If, as sometimes happened, they returned to find a rival in the field, a pitched battle would at once ensue, squeaking, biting, across the porch and down the steps like small cyclones, until by and by the victor would return to sit on the edge of the porch and while removing the stains of battle keep a vigilant eye on

the surrounding country to make sure the foe was utterly routed.

I felt more than proud the day when a dear little mother chipmunk brought her two babies to me, at first very fearfully, giving them many soft, excited admonitions, a sharp nip when they came too close or standing directly over them pulling them back with her little paws. Her bright eyes were always on me to see that I meant no harm, but as I sat very still on the floor talking to her in low tones and holding some crumbs in my hand so that she could see them, she seemed to think it was all right and let them both come up on my lap where they played around while she ate the crumbs.

But when the fall days came they no longer came to me to be fed. The corn was ripe in a nearby field. The acorns were beginning to fall, and a large yellow fungi—which we had termed toadstools—dotted the ground like stars. Of these last the chipmunks seemed to be particularly fond, though seeming to prefer them dried. At first I could not imagine how they got in the corners of the porch rail and hanging in the bushes, so I watched and found that the chipmunks put them there leaving them until well dried when they were eaten by both chipmunks and squirrels apparently with great relish.

NINA M. B. RUSSEL.



Some Quartz Crystals from the Borough of the Bronx, New York City.

BY EDWIN W. HUMPHREYS, NEW YORK CITY.

Though quartz is an exceedingly common mineral and is to be met with everywhere, good crystals are not so common or so widely scattered. Still, in some places even these latter are common. Fortunately, or unfortunately, according to one's point of view, the Borough of the Bronx, New York City, is not one of the places where good crystals are to be picked up at every turn. In my own collecting, I have only occasionally found them, and never have I found them to be abundant.

The first quartz crystals that I had the good fortune to find in the Bronx are some transparent and colorless ones that I discovered, together with some crystallized calcite, in an excava-

tion in the limestone near the Ship Canal at Kingsbridge. From the cut for the canal itself, some amethystine crystals were obtained, but I was not fortunate enough to get any of them. Though not coming from the Bronx, it may be pertinent to mention some smoky crystals which were found in the schist just across the Harlem River, in Manhattan, north of Fort George. These are a fairly good size, the largest measuring about ten millimeters across the widest face of the hexagon. Unfortunately, the crevice in which it had crystallized was not large enough to allow for its full development. Looking through it, one may see many bubble-like inclusions as well as others that are apparently mica. These inclusions are arranged in planes that run diagonally across the hexagonal crystal.

The crystals last described were found in the schist and are the only



QUARTZ CRYSTALS FROM THE BRONX, NEW YORK CITY.

ones that I have found in this kind of rock within the limits of the City; all the others coming from the limestones so well developed in this region. In the excavation for the Concourse at about 173d St., a mass of crystals, about six inches long and four inches wide was found. These crystals range from very small ones to some whose faces are ten millimeters across. Unlike those from Fort George, these are transparent and colorless. But, by far the finest mass of crystals was found just north of this place and I can well remember the hot, summer day on which it was discovered, also, how joyfully I worked with hammer and chisel to separate it from the mass of rock on which it was formed. Some of these crystals contained black inclusions, otherwise, they are colorless and transparent. South and east of this locality, but in the same limestones, near Clay Ave. a beautiful specimen was found. This consisted of a pocket, or geode, in some disintegrating limestone whose walls were covered by a

mass of drusy quartz and small crystals. No diamond sparkles more brilliantly than does this crystal-lined cavity.

The three localities last mentioned lie in the limestone west of the high, gneissic ridge that extends along the west side of Webster Ave. in this region. To the east of this ridge, lies another limestone belt which formerly was joined to and was continuous with the limestone to the west. In this limestone, at Third Ave., just north of 170th St., a few scattered crystals in an imperfect condition were found.

While good crystals have probably been found in other parts of the Bronx, the foregoing are the only places in which specimens have been obtained as a result of my own collecting.

It is an excellent magazine, and, partly through it, my boys, now young men, have been led to the systematic scientific study of specialties.—*Rev. E. A. Wasson, Ph. D., Newark, New Jersey.*

THE CAMERA

A Valuable Photographic Appliance.

I have read, with much interest, the exploitation in various photographic magazines, of lenses of all sorts and sizes and focal lengths. I have learned the joys of this swing back, of that pull up or of that take down; I have sympathetically revelled in the enthusiasms of the various devotees of focal plane shutters and of other varieties of shutters; I have



GUMBOWOO—THE "NEW" PHOTOGRAPHIC APPARATUS.

(Note—explanatory, etymological, historical and prophetic.—Coined words in photography seems nowadays especially to be in order. The o or oo sounds have the preference. To be in the fashion and to exploit something new and effective, in mysterious name, we propose the above. We make haste to state that there is deep significance in the name gumbowoo, but lest we be misunderstood, the statement is hereby plainly made that it is not from gumbo soup, nor woo-ing the fair goddess of photography. It is of plebian, yes, even "barbarian" origin—*gum, boots and woolen socks.*—Ed.)

read formulæ for all kinds of strange mixtures of hypo, cycho, lycho, jolo, bulo, relo, turbelo; or did I dream somewhere of all these strange chemicals? Any one may dream almost anything after reading the photographic magazines, in his visions including ghosts, fairies, human beings with one eye and that a poor one, noses amusing in their unreality, one ear gone, even from front view, or lost in the hazes and mazes of fuzzy, foggy photography. But I sing of the joys of a more plebian, commonplace appliance. The apparatus that I have in mind is, in this formation of mysterious compounds, from a distant land, is produced by physical processes unknown to many of us, and the result is unmistakably commonplace and familiar.

I sing of the joys of rubber boots and I usher them into the realm occupied by valuable, comfortable, enjoyable, photographic apparatus. Wearing them you no longer view from afar the beauties of the brook in winter nor in summer; with them you can easily get into the midst of things. Perhaps you, city man, may think it strange that I should thus sing the joys of rubber boots, but rubber boots lead to many new objects; they may reveal fair lands rivaling those of Munchausen. Every photographer that was born and bred in the country, and in his later years buys a pair of rubber boots and uses them with the camera in winter, or upon the breaking up of the brooks towards spring, has not only an effective method of getting at desirable objects but is perpetually celebrating the memories of boyhood when recesses and noons were winter and summer spent at the brook. The brook not only goes on forever, but is still a joy forever—provided one has rubber boots. The rubber boots are almost comparable to a new cult. They do, at least, literally procure another



BY THE AID OF GUMBOWOO—AND, INCIDENTALLY, OF A CAMERA!



"HE MUST SEE BOTH SIDES OF THE STREAM
AT ONCE."

point of view. When one looks at the brook from one side, or tiptoes along on protruding stones and gets to the other side, he is like the two men that each saw



"INSTEAD OF GOING AMONG THE ICEBERGS
OF THE NORTH."

only one side of the shield. If he would see things in their true relation he must see both sides of the stream at once.

Not a long time ago I was shown the traveling belongings of a camerist who had been all over the world nearly, and had a wonderful variety of photographic souvenirs collected from the neighbor-



EXCELS IN BEAUTY "THE PALM TREES OF
THE SOUTH."

hood of the North Pole to that of the Equator. In his kit he had everything from dog sleds for the north to thermos bottles to hold cold lemonade for the south. But, reader, you can get as great a variety of scenery with smaller apparatus and less traveling. Instead of going among the icebergs of the north and the palm trees of the south, get a pair of rubber boots and watch the results that follow the changing temperature and the different scenes that appear in the middle

of the brook. Sometime I hope to travel over the world in my rubber boots by turning thirty-two points of the compass in every direction from the middle of the brook in every season of the year. Select any of the many spaces in almost any brook and you may have all the valuable panorama that swings around that

Water Wears away a Stone.

It is proverbial that the continual dropping and running of water will wear away a stone, but we are inclined to think of that saying, if we think of it at all, in its application to persistence in a good cause or to the evil of persistence in a bad cause, compara-



"REMARKABLE EXAMPLE OF THIS ABRASIVE POWER OF WATER."

Note how evenly the boulder has been worn away, and how graceful is the curve.

center during the varying days of the year, yes, even hours of the day. I have one regret in regard to Tennyson's "The Brook," because he followed only the varying courses of the water. The scenery, the bank, the flowers, the birds are enough to engage our closest attention.

Was Linnaeus right or was he simply indulging in a little hyperbole when he laid his hand on the bit of moss and said to the pupil, "Here is sufficient material for the study of a lifetime?" If he were right, then in the same spirit I say that any spot in the middle of a brook affords plenty of material for an age-long study, provided the observer have for making the records a good camera and, for comfort and protection, woolen socks in a pair of rubber boots.

tively few of us realizing that water really does wear away a stone.

While wandering up a brook in the dry season, accompanied by a camera and a friend, we came upon a remarkable example of this abrasive power of water. A large boulder was lying in the middle of the stream, each side of the stone having been hollowed into so deep a concavity that it gave the observers the feeling that the boulder was being chopped down by the brook, much as a woodcutter chops into both sides of a tree, and it seemed as if only a little more cutting were needed before the stone would topple over. The accompanying photograph shows this excavation on the right-hand side, the shadow on the left making that side much less effective.

Sunset And Rain Storm.

The two photographs for which name of photographer was requested, on page 387 of the January issue, were taken by Dr. G. A. Hinnen, Cincinnati, Ohio. Of them he writes:

"The upper scene is a sunset on the Big Miami River, which I took at a moment when the sky was indescribably beautiful; the colorings are lost in the picture, but to my mind they return in all their original glory; it was the most beautiful and picturesque sunset I ever saw on that river. The lower picture is on the same river taken about 6 P. M. during a terrific rain storm; in fact, the kodak had to be protected by holding it under the outstretched arm with a poncho thrown over same. The rain was so heavy we feared an inundation, and the river did rise more than a foot in an incredibly short space of time.

The Flicker as a Mechanic.

Everybody is familiar with the fact that all members of the woodpecker family chisel out bits of wood to make a hole in a tree, then curve the hole downward and build a nest at the bottom. I had always supposed that the bits of wood removed were like sawdust. Imagine my surprise when last spring I saw, under a tree where the flickers had been at work, that the ground was covered with pieces of wood almost the size of one's little finger. I collected a few of these and show them in the accompanying photograph. The thimble is included for comparison of size. Has any one seen larger chips taken out by a woodpecker?

A photograph is for more than art; it must tell something of interest.



REMARKABLY LARGE CHIPS TAKEN OUT BY FLICKERS IN CUTTING A HOLE FOR A NEST.



YOUNG BUZZARDS—WELL PHOTOGRAPHED TO SHOW FRONT AND PROFILE.

Photographs of Two Young Buzzards.

The photographs of two buzzards here shown were taken with a kodak by Miss Clara E. Allen, Hicksville, Ohio. These birds had their home in a hollow log and were dragged into the light so that they might be photographed. Their habit of vomiting when disturbed is so offensive that our readers will prefer to see a photograph rather than the original, but it is of interest to know what kind of looking creatures these scavengers are, especially in their youthful days.

A Dove on a Hornets' Nest.

BY G. E. DAVIS, DUBUQUE, IOWA,

Here is a curiosity in bird's-nest making—a turtledove on a hornets' nest in an evergreen tree. There were probably half a dozen twigs laid upon the top of the nest to keep the eggs in position. The dove hatched two young ones. The tree was within three feet of a path where people passed every day.

The camera was set in position and the bird left the nest while the operator was focussing it. The camera was then allowed to remain until the bird



THE TURTLEDOVE ON HER NEST ON A
HORNETS' NEST IN AN EVERGREEN
TREE.

returned, when she sat very still while the photograph was taken.

"Snap Monstrosities."

Rochester, N. Y.

To the Editor:

Your editorial, "The Evil of the Snap," is a surprise; it conveys the idea, that the kodak is responsible for the photographic abortions which have come into being through promiscuous snapping. I have positive knowledge of the "snap" having been in operation for, at least, three years before I ventured to dabble in photography; and, as far back as the summer of 1887, before a kodak had been placed on the market, and before kodak was in the photographic vocabulary, I was snapping with a plate camera. The snaps which antedate kodak days cannot be charged or credited to the kodak.

The kodak has not a monopoly of the "snap;" it has a host of keen competitors; it should not be held blamable for its competitor's snap monstrosities.

The snap is not evil, except as an occasional pervert makes it so. You mention, "The Evil," in your subject: but you do not show it in your arguments. You rambled far from the evil, and revelled in the errors.

You ask, in substance, where is the kodaker, the real photographer, the skilled photographer, who would "take" a friend, group, or scene "with nothing more than a snap," or who would make an exposure of "one-hundredth" (of a second, I presume) with anything less than a focal plane? To each question, I answer: "Here!"

Now! What do you want?

Yours very truly,

GEO. W. KELLOGG.

—P. S. I authorize you to make any use of this communication that you desire.

GEO. W. KELLOGG.

What a spirited—yes, almost "snap"—ish, confirmation of the argument, in what seems to have been intended to be a disagreement. The best "use" of the letter is to publish it in full—to prove the existence of "the photo-

graphic abortions which have come into being through promiscuous snapping," and to further prove that this "evil" exists not only with the use of the kodak but with other cameras. That's right.

Chicago's Walking Club.

The title of the programme is "Saturday Afternoon Walks in the Forests, Fields, Hills and Valleys about the City."

The invitation is as follows:

"In the vicinity of Chicago there are many tracts of woodland of great natural beauty which can be reached with slight expenditure of time and money. The lake shore with its ravines at the north and forest-covered sand dunes at the south, the three rivers, the wooded hills and the open country—all these offer facilities for recreation and relief from city life that, for the most part are neglected.

"It is felt that there are probably many persons who, for lack of time, or awed by the perplexity of routes offered by twenty-nine radiating railroads, have not ventured forth to enjoy the beauties of nature that lie profusely scattered at the very gates of the city; and that a series of walks, led by guides who are familiar with the regions visited, and who have solved the riddle of the time-tables, will at least serve the purpose of an introduction to Chicago's really beautiful environment.

"To this end you are invited to any or all of the walking trips."

Such a club should be formed in every city. Walking is good so far as it goes, and so is the route traveled.

Your delightful publication is both a guide and pleasure "To him who in the love of nature holds communion with her visible forms."—*W. H. Sabine, New York City.*

THE GUIDE TO NATURE is good both for body and soul.—*Fred Christiansen, Principal Manitowoc County Training School for Teachers, Manitowoc, Wisconsin.*



Incorporated, Massachusetts, 1892

Incorporated Connecticut, 1910

A Year of Chapter Meetings.

Contains many good suggestions to other Chapters, especially those constantly inquiring, "How Do Others Do It?"

Chapter 15 (Action Vale A) of the Agassiz Association,

Established in the Town of Acton Vale,
Province of Quebec, Canada,
Report for year 1910.

We number fifteen members. The meetings are always held in St. Mark's



MR. AND MRS. LOUIS C. WURTELE.
Faithful workers in the AA for many years.

Parsonage on the Thursday preceding the full moon. After the application of the mental powers, it is well to attend to the corporal requirements, and light refreshments are always served to the members.

The following is an epitome of the subjects treated through the year:

January 6, 1910. The kangaroo and its habits were discussed. It is indigenous to Australia, where are found many curious animals not to be met with in any other country, and here there is neither deer nor goat.

January 27. We treated of the beaver. Combined with the maple leaf it is the emblem of Canada; so certainly we, Canadians, should be deeply interested in that little active and interesting animal whose geographical range comprehends America as well as Europe.

February 24. The very Reverend A. H. Wurtele, the Dean of Duluth, gave a very interesting lecture on the State of Minnesota.

March 24. As the newspapers were full of rumors about Halley's comet, an article on that subject was read and well discussed.

April 21. The lecturers were unable to attend, but a pleasant and instructive evening was passed by the members listening to the reading, in *THE GUIDE TO NATURE*, the account of the splendid work being done in The Agassiz Summer School in Arcadia, and also the pleasant account of the Reverend William J. Long's home and work, which certainly was not lost time.

May 26. We had a lecture on the dragon flies belonging to the Odonata, which the French named "demoiselles" from their graceful movements. They have four membranous, veiny wings and can fly backwards as well as forwards. The larvae are fierce, voracious looking things, living in shallow pools.

June 16. The dear little humming birds were the theme of the evening. They have a very slender beak, which

is plunged into the heart of the flowers, not so much for the honey there contained as for the insects drawn there by the fragrance of the flower and the honey. They are peculiar to the Western Hemisphere; none being found in Europe, Asia or Africa.

July 28. The history of the bat family engaged our attention this evening. Their ancestors were called *Pterodactyli* and were immense, measuring eighteen feet in spread of wing. In Java they look like winged rats. In this country we can compare them to winged mice. They have a hook-like appendage on their wings, by which they hang head downwards during their sleep in the day time as they are nocturnal animals. Their food consists of flies and other insects which they capture on the wing.

September 15. We were favored by a lecture from Mr. J. Hunter Wurtele who is Superintendent of Construction in the Washington Power Company, in Spokane, State of Washington. It was a pleasant and instructive description of Spokane and the surrounding parts, also the great works of the company were depicted to us. He spoke of the climate in winter and summer and of various other matters.

October 13. There was a paper read on lighthouses, given by Mrs. A. A. Racicot, which was followed by a pleasant discussion on the usefulness of the lighthouse and the dreadfully lonely life the lighthouse keeper has to lead in doing his duty.

November 10. Toads and frogs were the scope of a paper read by Mrs. L. C. Wurtele, our Secretary. Frogs have minute teeth, but toads have none. The skin of the frog is smooth, but that of the toad is rough and covered with excrescences like warts containing cutaneous glands holding a yellow fluid with acid properties, capable of irritating and inflaming the human skin.

December 15. A paper written by Miss Rahkin was read, giving an account of her trip to Jamaica, West Indies. She entered into the botanical character of that country as well as some of the habits of the inhabitants. The paper was most gratifying to all

who heard it. Another paper on the honeybee took up our attention and elicited quite a discussion. A singular fact in this locality is the diminution in the quantity of honey obtained in these environs since a few years, and this is attributed to the use of Paris green and other such drugs used by the farmer for the destruction of the *Doryphora decemlineata* or Colorado potato beetle. The bees coming for the honey in the flowers of the potato vine fall victims of the drugs used.

LOUISE C. WURTELE, President.

ISABELLA H. WURTELE, Secretary.

Carnegie Gives \$10,000,000.

ADDITIONAL ENDOWMENT FOR CARNEGIE INSTITUTION AT WASHINGTON.

New York, Jan. 20.—Andrew Carnegie today added ten million dollars to the endowment fund of his Carnegie Institution in Washington, bringing the total endowment of that institution up to \$25,000,000. In making the announcement, Mr. Carnegie said that the work of the institution had been so satisfactory that the money would aid it in attaining scientific results that in the past have been only dreamed of.—*Press Dispatch*.

The Agassiz Association extends congratulations to its scientific friends upon the success that they have attained in the management of the Carnegie Institution, and upon Mr. Carnegie's further encouragement to continue and increase. They have evidently made good use of his first gift of seven million dollars and the later additions. Even seven millions would go a long way toward starting almost anything on the road toward success.

It is interesting to note, as we do in the foregoing despatch to the press, that Mr. Carnegie is aiming at "attaining scientific results"—that he desires to increase the stores of human knowledge—rather than to attain their charter's ultimatum which calls for "the application of knowledge to the improvement of mankind." If its object is really not that "application," but rather the investigation of pure technical science, in which President Woodward is a

specialist, then we may glimpse the Directors' purpose in repudiating Luther Burbank, although their conduct, so far as the public and Mr. Burbank's many friends understand it, is still as much of an enigma and as disgraceful as ever to the Institution.

The Institution is evidently doing good work and with the latest ten million dollars can go on to better things. It is much to be regretted that it does not clearly explain its treatment of the man who, above all others, has applied a knowledge of plant life to the improvement of humanity.

When Nature's Year Begins.

The nature lover's year begins in March. That is when God's year begins; and any one who loves God's out-doors cannot but begin his year when it does. In the history corner of the library, in the office of the business man, on the engagement list of the society woman, the year may begin on the first of January. But the real year, God's year, Nature's year, begins, for those of us at least who live on this belt of the earth, when the sun crosses the equator. For six months the southern



AN AA MEMBER AND HIS HOMEMADE TELESCOPE.

John E. Mellish, Cottage Grove, Wisconsin.

The Cruelty of the Steel Trap.

One of our readers calls attention to the cruelty of the steel trap, as follows:

"The steel trap has always seemed to me an instrument of torture. Is it a necessity and is there nothing that will accomplish its purpose in a more merciful manner?"

"Boys resort to the steel trap upon the first provocation, without a thought as to the suffering they are about to cause.

"I should like to see something written on the subject.

half of the world has had its turn; now ours comes again.—S. C. Schumucker in "Under the Open Sky."

The Right Point of View.

I am a geologist and civil engineer and a great lover of nature and hope to do some good for the Association.—R. E. Vandruff, Evansville, Indiana.

It's getting better all the time. More power to it.—B. R. Bales, M. D., Circleville, Ohio.

The La Rue Holmes Nature Lovers League

By George Kingle, Summit, New Jersey

"THE GUIDE TO NATURE" is the official organ of the LaRue Holmes Nature League. It is important, for the general League interest, that the magazine be liberally supported, through the active cooperation of League members—George Kingle.

L. H. Nature League Motto: "Self-sacrifice; heroism for another."

Are you wondering to what plant to secure artistic effect on that trellis, unpicturesque fence, or little dead conifer? Try planting gourds. Plant plenty and many kinds, you may then, possibly have a point of interest to which you may introduce callers.

We would suggest that residents of New Jersey, who are interested in bird-life, keep on the watch for the evening grosbeak around berry-bearing trees. It has recently been recorded as having been seen at Plainfield, and may take a freak to further invade the state. The last record, previous to the recent one, was at Summit in 1890, the year when this erratic and beautiful bird visited New England, in considerable numbers, and was met by such barbaric slaughter.

"Summer" Birds in Winter.

How is it about our bird friends this season? Has there been anything peculiar in the winter which has invited some to remain with us that usually seek mild climates while our winter storms beat? The following are among my recent records: December 14, a song sparrow at my window on the breakfast-shelf. December 16, a hermit thrush to dine with us yesterday and today. December 18, for three days an ovenbird has been coming back and forth at my window. Of course, we have woodpeckers, juncos, nut-hatches, chickadees and little brown creepers, but why are the summer birds with us?

I have known of song sparrows wintering in neighboring places, but have never before seen one earlier than February 27.

Recently Elected Officers.

New Providence Chapter, N. J.: President, Gerald Ward; Vice President, Theodore Slade; Secretary, Ora Welborn; Treasurer, Creighton Thompson. Potwin Chapter, Summit, N. J.: President, Lucille Whitehead; Vice President Dorothy Jean Pettis; Secretary, Katherine Grow; Treasurer, Orlando Underwood.

The Devastation of Forests.

If you are truly a nature lover you hear across the winds the ring of thousands of axes, swinging in forests which the nation has tried to save, but which our representatives in Congress have, so far doomed to destruction.

If you are truly a nature lover you await, a bit breathlessly, the hour when the demands of this nation's intelligent element shall be respected, and the ring of the axe be hushed in the Appalachian and White Mountain forests. But what are you doing, or intending to do individually, to hasten the time? Will you give an hour of your life in helping to deluge the men at the helm, in this matter, with expressions of sentiment in behalf of the preservation of the grandeur of our forests; of the industries nearing their death-throes through the destruction of the steady power of the water ways; of the tillers of hitherto fertile fields now being impoverished through the debris from deforested mountain sides? Will you dedicate an hour, now and then, to talking up with your neighbor, inducing him to lend a hand? Do you use your pen, if you have a right hand and send your appeal beyond the area of your spoken words?

If you are a nature lover the ring of the axes comes to you in echoes. Help to hush them.

Faunus.

He is only a dog. His portrait is before you. But what is it he says in the silent appeal, from eyes that look up to me, as he gently thrusts himself between me and any human who may press close to me?



FAUNUS.

He is only a dog, but what passion is it that leads him to spring between the mother with a rod and the offending child—what is the meaning of the mute appeal, as he looks up; why does his face gather darkness, and his teeth show, if his first appeal is not enough?

He is only a dog, but what motives leads to cries, like sobs, as the child casts her arms over him—her face aflood with tears—two sobbing together, on the floor under the table?

What is it but love that reaches out to you, with yearning in the uplifted eye of your dog? and what can separate you from the love of this mute creature? It is not hunger, hardship, neglect, anger or barbarity—nothing but death itself. We need to be pitiful; to be kind; to love back.

"Thinking of Someone."

Can anyone interested in mental processes, explain what is really meant by the expression "thinking of" an individual? Do they imply that a memory-

picture presents itself? Do we "see" the person of whom we think, however dimly, or is there no mental picture, but simply some conception, not based on an impression of "a presence?"

Is it possible "to think of someone," without, in some degree, "seeing" a more or less distinct picture?

The Blue Flower Meetings.

This is the season of the L. H. Nature League Blue Flower meetings when addresses are given which are intended to accentuate the sentiment of our motto, "Self-sacrifice; heroism for another." A further intention is to present the thought that our pathway through life is like a garden. We sow thought-seed as we pass through, and leave the way better or worse for our presence. We need to promise ourselves, as we drop in the ground the garden seeds, given to every member, that we will imitate the example of each tiny seed which struggles through every difficulty, to send its tiny shaft upward to fulfill its God-given mission.

Was It An Exceptional Sparrow?

Was my song sparrow exceptional, or are there more, though unknown to me, that warble low rapsodies while feeding on the ground? No sweeter warble could be imagined than those I heard, last season amid the grass, and from the tops of stones or bits of dried earth. I have known many song sparrows, but no others that warbled as he threaded his way from place to place across the grass.

We hear so frequently that song sparrows build near the ground that I have wondered if ours are indeed exceptional in building in a vine, about eight feet above the garden-border.

If I have, at times been led to consider, without ever solving the problem, why chimney swifts prefer a chimney to some less sooty, fervent place, I have given the matter up as involving less interest than the more recent problem—why has our screech owl chosen to establish himself in the stable stove-pipe hole?

The Sherwood Lecture-series.

The Sherwood Series of lectures, also being given at this time is especially intended to call attention, among the young, of both sexes, to the earning power of soil. Many of our young people, of rural districts, go, at the call of cities, to struggle and to sin in congested localities.

Our young women, through occupying the places otherwise open to men, make it difficult for the latter to marry. The girls who marry, being supposed equal to managing household economies to keep within the income, are too frequently found to be impossible agents. They know nothing of cooking, sewing or of managing to maintain family health, and, perhaps, in a majority of cases, they care less. They have been schooled to the bustle of business-life; to contact with the many.

Life's struggle, under the circumstances, involves debt, discouragement, and, frequently, divorce.

We are showing young people that, under proper management, every foot of soil has an earning power. It holds a possibility for those desiring independence, without resort to the struggle for existence in cities.

In giving these lectures by those "who know" we give, to every member present, one, or more, packages of garden seeds together with a suggestion to use the same in starting home gardens.

The Silent Nest.

BY GEORGE KLINGLE.

A little bird lay wounded;
A shot had found her breast;
Beyond, three little baby-birds
Were calling from a nest.
She heard them, and, with struggling wing,
In anguish tried to pass
Beyond, to reach the cherished nest
She owned amidst the grass.

But nevermore her heart would warm,
Her wing spread out to shield
The babies in their cradle-bed,
Nor speed across the field
To gather food. The baby-cries
Grew fainter till at last
No voices called; the nest was still;
No bird-wing drifted past!

The Birds Are Returning.

The return of the birds is at hand. Each day will bring to us little familiar friends to rejoice about our doors, across the meadow, and along the woodpath.

We are the pledged friends of the birds. Let us welcome them, not as thoughtless intruders who disturb them rashly in their hidden haunts, but by a friendliness that prompts us to write down a name, with a date beside it, as we see a wing drift past, or hear a song under the gable. Let us watch the little personal traits of our friends in feathers; to note the number of days of buildingtime; the secrets, as far as may be, of brooding-days, the character of food fed to the young, and the respective habits of mates who minister beside little cradles.

Your help is solicited by the U. S. Government in gathering such facts concerning our little brothers of the air. It would give me pleasure to furnish you with blanks for use in this connection and I do not hesitate to promise you pleasure through your investment in time and interest.

REPORT OF OBSERVATIONS.

You who are observers have noted, and will, no doubt note again, interesting little facts, in connection with plant and bird-life, and of other forms of nature, will you not pass on the pleasure to others of us who may have been less fortunate? We of THE GUIDE TO NATURE, would appreciate the favor of your remembrance of us of this department when you have something, in brief words, telling of some secret you have learned from a stone, a living thing, a flower.

If you are a lover of the wild flower I would be glad to send blanks, for reports of the wild flora of your locality.

Have you photographs of the butterfly you saw poised on a flower, of the humming bird weaving its nest, of a bit of the wild flower riches on a roadside? Perhaps if you have none today, you may have, as spring deepens to summer when you may remember we are here to thank you for copies.

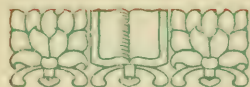
THE GUIDE TO NATURE

Volume III

APRIL, 1911

Number 12

A New Book of Nature
Is Now Opening



Are You Ready To Read It?

Nature is always new in the spring, and lucky are we
if it finds us new also.—*John Burroughs.*

EDWARD F. BIGELOW, Managing Editor

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GREENWICH, CONNECTICUT, The Edition de Luxe of Connecticut Towns

(Also see previous page)

The Most Successful Attempt of Nature and Man to Produce an Ideal Place for a "Home Near to Nature."

Here are good roads, palatial residences, comfortable cottages, beautiful scenery, millionaire-play farming, and make your living farming as primitive as in the days of our ancestors—even with the patient, picturesque oxen. Here are grounds, the ideal of the landscape gardener, and only a few rods away forests and fields as wild as in the days of the Indian. For anything and everything, come to Greenwich.

P. S.—Do not forget that Sound Beach is within the town. That is Greenwich's best claim for excellence.

Guiding From the City To Nature

It is the mission of the naturalist to get near to nature. To induce as many as possible to emulate the naturalist and to extend that mission is the purpose of this magazine.

The science teacher takes her pupils to nature by showing nature's interesting objects. Fortunate is she,

The nature writer writes because he loves to describe nature. The more he loves nature, the greater his success and the larger his royalties. The most of us try to do the thing that we best like to do, or at least it may be truthfully said that the better we like to do it, the greater is our success.

Success, therefore, is an indication



MR. LAURENCE TIMMONS, WITH EFFICIENT ASSISTANTS, IN CONFERENCE AS TO THE FIRST STEP—A HOME—IN NEARNESS TO NATURE.

and even more fortunate her pupils, if she realizes that this "taking to nature" is more important than her salary. The amateur naturalist is never so happy as when he is inducing others to join in his favorite pursuits.

of fitness for a position and of satisfaction in doing the work. The person that induces another to abandon a crowded city to live by the sea or in the quiet suburbs or on a farm, is doing good naturalistic work, although



"HIS OFFICE IS JUST ACROSS THE STREET
FROM THE GREENWICH RAILROAD
STATION."

he may not always realize it. He is doing work of exactly the same character as is the professional naturalist, when he succeeds in inducing some one to leave the nonsensical and worthless studies or amusements and to seek education and recreation in nature. The fact that such an occupation is a business or a profession, for which the world pays in commissions or in salaries, does not lessen the ultimate good, but rather adds an incentive for doing more good.

There are plenty of people who teach that the greater the number of suburban or country homes the greater the uplift to humanity. Among those who have done really effective work in guiding city people to the seashore, suburbs and country is Mr. Laurence Timmons of Greenwich, Connecticut. From the appearing of almost the first number of this magazine he has co-operated with us, and his services as "guide" to a "home near to nature" have been offered to our readers. And what is better, he has performed that work extensively and effectively. We commend him to our readers. His office is just across the street from the Greenwich railroad station. He has a good automobile in which to show



MR. TIMMONS DICTATING A LETTER OF GOOD ADVICE TO A NEW YORKER WHO DESIRES
GUIDANCE TO A "HOME NEAR TO NATURE."

you a purchasable and admirable home near to nature. He is the right man in the right place, and has made his business successful because he loves it and enjoys doing it.

He is cooperating with us in the purpose and spirit of The Agassiz Association, and in furthering its financial success as a patron of our advertising pages.

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to succeed in business. Doing this involves banking and your success increases if your check account is placed where the best banking service is rendered.

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The Dew on the Flowers.

A BASHFUL young lover walked into the house of his sweetheart bearing a large box with the name of a prominent florist written on the cover.

"How sweet and fresh they are!" cried the young lady, opening the box. "I believe there is a little dew on them yet."

"Why er—yes," admitted the young man in great confusion, "but it's just a little, and I'll pay it tomorrow."
—Success.

I wish, as a publisher, to congratulate you on its excellent appearance. It is a splendid piece of work, both from a literary point of view as well from a mechanical point.—*L. F. Haley, Syracuse, New York.*

We all continue to find increasing pleasure, interest and profit in each new issue—a little better than the preceding one.—*Frank P. Jewett, Orange, New Jersey.*



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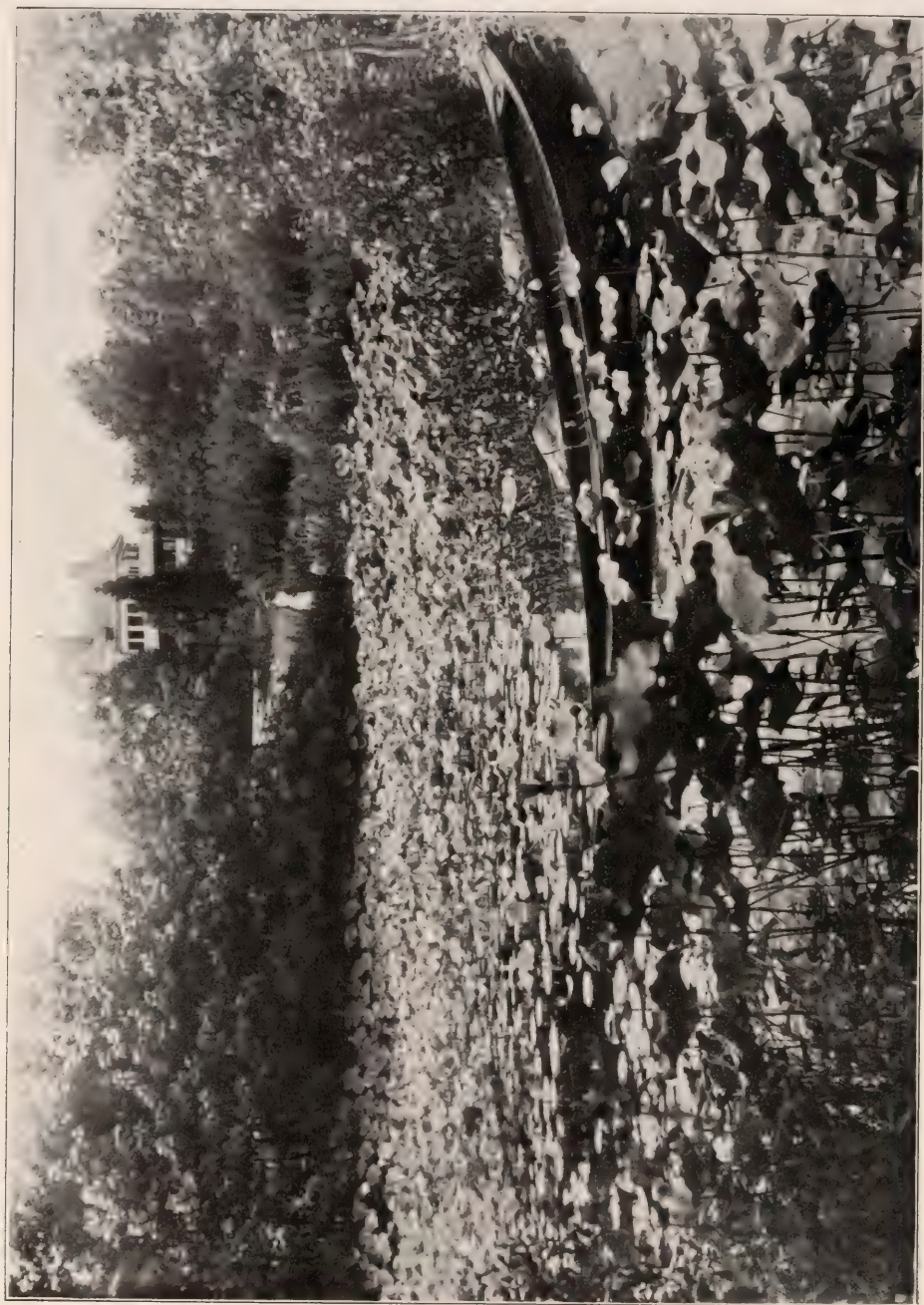


All water, whether it be a lake, stream, pond or even a small pool, seems to hold a certain charm for everyone, and, when this water is inhabited and beautified by aquatic plants and fish, it becomes fascinating. More especially is this the case when the plants are Royal Victorias with their immense leaves and flowers or gorgeous tender Nymphæas and Nelumbiums, or the chaste and artistic hardy Water Lilies, and, when we consider the ease with which these plants can be grown, there is no reason why every natural lake, pond and stream having the proper conditions, which are sunshine, still, warm water, and plenty of rich soil, should not be so beautified.



For those who have not the advantage of¹ natural ponds or large artificial basins, there are many varieties which can be grown successfully in half-barrels or any water-tight receptacle having a diameter of two feet or more, but, the greater the surface space, the better will be the results.—*Henry A. Dreer.*





THE HOME OF MR. AND MRS. FREDERICK GOTTHOLD, COS COB, CONNECTICUT,
Near to a beautiful, natural growth of Egyptian lotus (*Nelumbium*).



FOLLOWING BEAUTY.

See the beauty that is in the world, and make that beauty visible, worth while, and regnant in the lives of men and women. For we all need to know and follow beauty as we need to know and follow truth and duty.—*Frank A. Waugh.*



THE GUIDE TO NATURE

EDUCATION AND RECREATION

Volume III

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Number 12



HOMES NEAR TO NATURE
COUNTRY, SUBURBS AND SEASHORE.

A Home Especially Near to Nature

By **EDWARD F. BIGELOW**, Arcadia: Sound Beach, Connecticut



MOST homes that are near to nature are vignetted by nature, as the engraver of half-tone illustrations would describe them. Vignetted illustrations are without a definite boundary line but gradually merge into the surrounding background of unprinted paper. So some homes gradually fade away from well-kept lawns, paths and garden into wilder nature and so deliberately merge the natural into the artificial that one must walk for a long distance from such homes, to get into the real wild nature.

But I have come across a home that is not only near to nature but is actually in contact with it; such walks and lawns as are necessary are as

sharply defined as is the edge of an unvignetted illustration in comparison with its surroundings. Where one begins and the other ends is a definite line.

I was first attracted to this home of Mr. and Mrs. Frederick Gotthold of Cos Cob, Connecticut, through information that came to me from an esteemed member of The Agassiz Association. Here is the home, too, in all its luxuriance and protusion, of that sturdy, inspiring, aquatic plant, the Egyptian lotus.

Said my informant as she placed one of the globular blossoms on my desk, "To appreciate the beauty of this flower you should go at once to see it in its home. This specimen, as you perceive, has become somewhat faded



THE ROAD PREPARES A VISITOR FOR A "HOME NEAR TO NATURE."



A CHARMING BALANCE OF ROAD, THICKET AND CLEARING .

and withered, as I have carried it for a long distance."

I accepted the suggestion and called on Mr. and Mrs. Gotthold, where I was delighted, not only with the picturesque pond and the profusion of these marvelous flowers within it, but with the perfectly natural surroundings in immediate proximity with well-kept grounds. The tennis court was abruptly bordered by a tangled thicket of sumach, briars and vines. The artificial path at the back door imme-

tiful and picturesque as any in the famous Yosemite Valley or other equally renowned ravines.

The jewel of the lotus and its pond were in an admirable and harmonious setting. The paths leading from the lawn and woods to the pond were bordered with big clumps of perennial flowers such as larkspur, phlox, iris, peonies, roses, foxgloves, chrysanthemums and many others, making a succession of bloom from early spring when the first lotus leaves appear to



A RETROSPECT OF THE PUBLIC ROAD FROM THE DRIVEWAY.

diately, not gradually, changed into a natural path as wild and picturesque as one would ordinarily expect to find at a distance of many rods from the house. The art of nature and the art of man have here sympathetically co-operated.

"And then too, do not neglect," said my informant, "to visit the hemlock grove and the wonderful ravines just behind this home."

Following this suggestion I found a lofty, dense hemlock growth as beau-

late autumn when the picturesque seed vessels succeed the big fragrant blossoms. The flower, therefore, seemed to be in its proper place as sometimes such flowers do not seem to be when they are in a large park or a formal lawn. The photographic illustrations here shown afford a general notion of the effectiveness of this bit of dainty aquatic scenery. The boat in the foreground, the great leaves and the slender stalks of the lotus plants, with the globular blossoms, together



"THE ARTIFICIAL PATH AT THE BACK DOOR IMMEDIATELY, NOT GRADUALLY, CHANGED INTO A NATURAL PATH. . . WILD AND PICTURESQUE."



IN THE HEMLOCK GROVE IN THE WONDERFUL RAVINE.



"THE PATHS. . . . WERE BORDERED WITH BIG CLUMPS OF PERENNIAL FLOWERS."

with the picturesque home in the background, form a combination of beauty and of real satisfaction unequalled elsewhere. The home is literally close to nature. Its possessors have had admirable training for the appreciation of aquatic values and of picturesque, uncultivated nature, because for several years they made their summer home in a house boat in the wild part of the river valley of the St. Lawrence. Perhaps this fact increased their inspiration, by teaching them how to get the good things of water and of earth.

It seems strange that the lotus is so rarely cultivated. I had always supposed that it is extremely difficult to raise and was surprised to learn that this entire growth originated from two plants put in a half barrel filled with earth, well rotted leaves and manure, and submerged under water from four to five feet in depth. The pond is fed by springs though the water is never actually cold. It must be admitted that the pond is thus rather exceptional and is especially favorable to the growth of the lotus.



A CAMERA STUDY AMONG THE HOLLYHOCKS.



THE HOME AND THE LAWN ARE NEAR TO A REVELRY OF PICTURESQUE NATURE.

The first year after planting there were two blossoms. They remained uncut and dropped their seed. The second year there were twelve blossoms; the third year fifty, and the next two hundred. The summer following

there were few blossoms, not more than sixty, because the roots were destroyed by cutting the tops with the sickle instead of with shears. Last summer presented a wonderful display of hundreds of blossoms in spite of the



MR. AND MRS. GOTTHOLD MAY WELL BE FOND OF THEIR DEVOTED, BEAUTIFUL AND INTELLIGENT COLLIES.



A "PRACTICAL" SUGGESTION—A PLACE FOR BURNING LEAVES AND DEBRIS.

drought. The plants are so vigorous and luxurious after a test of six years that they bid fair to fill the pond unless their energies are checked.

Remembering that several years ago I saw the lotus, then regarded as a curiosity, in Central Park, New York City, I wrote for information to Mr. Beatty, Superintendent of Parks of Manhattan and Richmond. He replied as follows:

"About twenty years ago the lake at 110th Street, in Central Park, had a large plantation of lotus, which was rooted out and destroyed because it had spread to such proportions that it threatened to cover the entire lake and prevent its use for boating. Since that time lotus plants in the parks have been confined to a few specimens in the lily-boxes, placed in the fountains throughout the parks. These have gradually died off and have not been replaced.

"One of the gardeners, who has had experience in the care of the lotus, states that this plant requires but little care. The best method of planting is to plant in a box eighteen inches to two feet in depth and, as to the other dimensions, large enough to permit of the box being taken up at the close of the season and stored in a dry, temperate place for the winter. This is

in order to avoid disturbing the roots, which are large, fleshy and very brittle and are, therefore, easily broken."

I am informed that the plants are obtainable from several well-known dealers in seeds and plants. Henry A. Dreer, Inc., Philadelphia write that they can supply the roots of the lotus in early May, and that they have them in several colors.



THE PECULIAR CENTER OF THE LOTUS.

(Note from Henry A. Dreer, Inc., Philadelphia).—We grow about two acres of these plants, mostly the variety *Nelumbium speciosum* or Egyptian lotus, as we find this variety the best for general purposes, it being a free grower and very free flowering. There is no doubt but that this is the variety which is in the pond which you describe.

The *Nelumbium*, as you, no doubt, are aware, is a native of India and is the sacred lotus of the Hindoos which was early introduced into Egypt. The Egyptians used the seed for a food. The seed was gathered and dried, ground into flour which was then baked into bread.

The American Indians utilized the seed of the yellow lotus (*Nelumbium luteum*) in a similar manner and the Chinese and Japanese used the roots of *Nelumbium speciosum* as a vegetable, the roots being an article of commerce in their stores at the present time.

Nelumbium speciosum was introduced into America by Mr. E. D. Sturtevant of Bordentown, N. J., about 1876. A year or two later he set out a plant in an open pond which grew so luxuriantly that in eight years' time it had filled a

space of three quarters of an acre, making leaves from two and one half to three feet across, nine to ten feet above the water with abundance of flowers. We regret to say that through neglect in recent years this pond has become filled with silt, leaves, etc., which have finally killed out the *Nelumbiums*.

As a general rule, these plants will not flower the first year of planting as they require one season to become thoroughly established, but, if given lots of soil and room to spread in, they will flower freely the second and succeeding years without any great amount of attention, with the exception of keeping the dead leaves cleaned out, and when they become crowded. A liberal top dressing of bone dust, dried blood or other good chemical manure is beneficial, this being applied early in the spring just before they start into growth.

The plants should be planted in the vicinity of New York from May 1st to June 1st—in fact, that is the only season of the year it is safe to transplant these plants, as they are very impatient of disturbance at the root before they show growth, and also after they come into active growth.



THE HUGE, GLOBULAR FLOWER BUDS OF THE LOTUS.



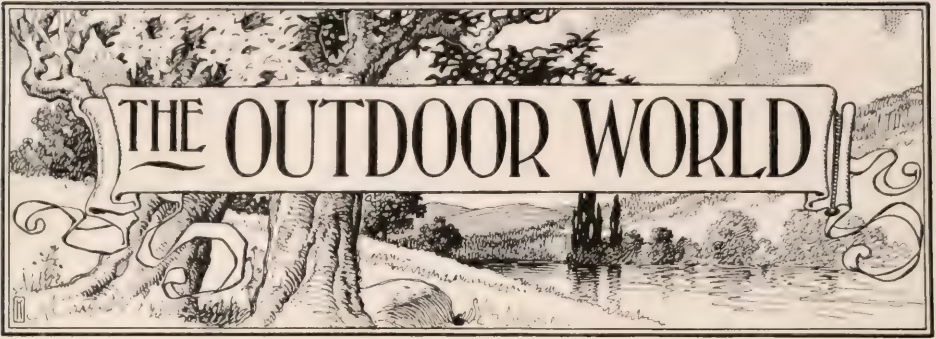
THE MARVELLOUS OPENING OF THE LOTUS FLOWER AND THE FALLING OF THE PETALS.

Catching Turkeys by a Fishhook.

It is claimed that wild turkeys have been largely exterminated from Virginia, even in places where they were plentiful only a few years ago. Dr. Shufeldt in "The Auk" says that the trouble is the negro who catches the turkeys by an extremely cruel method described as follows:

"When these fowls came to flock, or at the mating season, the ingenuity of these game destroyers,—these law-breaking negroes,—knew no limit. The places where the turkeys congregated or where they were in the habit of roosting, were easily discovered, and a most fatal design of trap was set for them in each and every locality. So simple, so inexpensive, so sure of result was the means employed to capture the birds at these times that their destruction was effected with great rapidity. They were simply baited, and baited in two ways, depending upon circumstances. For instance, let us select one of the many localities in

the forest where the turkeys roosted in the trees, and where in the morning and early evening they fed and strutted and walked about on the ground, in the neighborhood. To capture them, these negroes employed only a very small fishhook firmly attached to the end of a long piece of pliant, dark-colored twine, of sufficient strength to hold the victim. When the hook and line were set up in one of the roosting-trees it was baited with a soft piece of dough about the size of a small acorn. In the trees where the turkeys roosted, parallel limbs were selected, the one being some three or four feet above the other. Through previous observation the negro had become aware that a turkey was in the habit of roosting on the lower limb, and by running the twine over the upper one and suspending the bait where the bird could conveniently reach it, the remainder of the line was cunningly concealed through the trees and finally firmly fastened to a peg in the ground beneath. What follows is easily imagined, and hundreds of wild turkeys have been captured and killed by this simple affair."



Fishing for Fresh-Water Pearls.

BY MRS. SARA SAVAGE MULLER, BROOKLYN,
NEW YORK.

Fishing for fresh-water pearls may be made an interesting recreation. It is mild exercise, it has the advantage of keeping one out of doors and the hours

slip by unnoticed. The pearls are found in mussels which abound in many of the streams and lakes of our country, and which live at the bottom of the water, there forming what are known as mussel beds. When the mussels are hatched, being incapable of taking care of themselves, they fasten themselves to free-swimming fishes, and remain attached for several months. In time, they fall to the bottom of the stream, and begin an independent life. This to some extent accounts for their wide distribution.

Men who make a business of fresh-water pearl-fishing, usually fish in deep waters, using a drag for the purpose. This consists of many four-pronged hooks, fastened to a number of lines, which are attached to an iron bar. This is let down into the water and dragged across the bottom of the stream.

Pearl-fishing for sport, is quite another thing. A canoe is useful for the purpose, because it can float in shallow water. It is easy to reach over the side of the boat and gather the mussels from the mud. Large mussel beds are often found in water too shallow for a canoe, and then a pair of rubber boots help in the quest, and add to the sport, but until one has learned to distinguish between favorable and unfavorable beds, one's first experiences are apt to be discouraging.

It is useless to fish in beds which contain large and perfect mussels; but in those in which the shells are stunted or imperfectly formed, pearls are often found.

When visiting a new stream or lake,



THE PLEASURE OF THE PURSUIT; AND THE
PURSUED—THE PEARL AND THE SHELL.
Rahway River, New Jersey.



THE JOY OF POSSESSION AND THE THINGS POSSESSED.

Finding the pearls, and a pearl necklace from a mussel bed of a Vermont lake.

the first thing to do is to locate the favorable beds. This is done by gathering a number of mussels and examining them. If they appear to be imperfectly formed or stunted, and the interior pearly surface is blistered or otherwise marred, the bed may be considered favorable; but if the mussels are well formed, and the interior lining of the shell is smooth and lustrous, the bed is a healthy one, and, therefore, unfavorable for pearl fishing.

One summer the writer fished in the mountain lakes of Vermont, after a long drought, when the water was low and clear. Conditions were just right. After several days of exploring,

a favorable bed was located, which yielded, after five days of fishing, seventy-four beautiful little pearls. They were all of an unusual violet color, with a brilliant luster.

The following year the writer was located on a New Jersey stream, in which there were many mussels, and most of them apparently unhealthy,—their interior linings being greatly marred, but the pearl fishing was poor. After a summer's work, only two pearls of any account were found. One was a button pearl, found half imbedded in the stomach of the mussel. It was creamy white, with a soft luster. The interior lining of the shell was almost entirely destroyed, and the shell itself was decidedly stunted. The other pearl was a purple baroque. It was taken from the same bed, and was found under the mantle of the mussel. The interior lining, in this case, was slightly marred, and the shell was stunted. Only one healthy bed was found in this stream. In it, the mussels were large and perfectly formed, and their interior linings were smooth and lustrous. On examination they yielded no pearls.

The writer went to St. Paul, Va., and fished on the Clinch River. Some of the mussels in this river are as large as dessert plates. The mother-of-pearl lining is heavy, and beautiful in color, sometimes pink, purple or salmon, but more often white. This river has been visited by the professional pearl fisher, and is consequently almost exhausted. I found a few pearls here, all of which came from apparently unhealthy mussels, with the exception of a small tooth-shaped specimen of excellent quality, which was taken from an apparently healthy mussel.

Those pearls that are easily found are generally worthless. Those of fine quality are usually difficult to find.

There is nothing puerile in nature; and he who becomes impassioned of a flower, a blade of grass, a butterfly's wing, a nest, a shell, wraps his passion round a small thing that always contains a great truth.—*Macterlinck*.

THE CAMERA

Photographing Spring Flowers.

BY MRS. M. E. MCDUGALL, PLATTSBURG,
NEW YORK.

We who love nature are looking forward to the gathering of the early wild flowers, and if interested in camera work, are planning pleasing arrangements, good backgrounds and suitable baskets or dishes to hold our treasures.

with arbutus. We did not wait until spring, but gathered the buds which form in the fall, tied them in bunches, bound the rootless stems in soft moss, and placed them with partridge vines and berries in glass globes, covering the tops with glass saucers.

If kept damp and given plenty of sunshine, the buds blossomed, some in the early part of winter, others later



ARBUTUS DECORATIVELY ARRANGED.

This photograph and that of the single hepaticas are by Mrs. McDougall.

I have used the ingrain wall paper, terra cotta, deep cream and dark green, for backgrounds, fastening it to a large, upright, drawing board and letting it extend over the table. Simple baskets or clear, plain glass do not take the eye from the flowers, and if a loose bunch is laid over one or two books it presents a graceful and pleasing appearance.

We have had a pleasant experience

toward spring. In February, I saw one small globe with two sprays in blossom, six flowers on one and one on the other. The odor that breathed from that globe when I lifted the cover was delightful. I cannot express the pleasure it gave me.

I wish the readers of THE GUIDE TO NATURE would try this. If you have friends who cannot get to the woods, make them a gift of arbutus buds in



A DAINY ARRANGEMENT OF SINGLE HEPATICAS.

the fall, and they will have something to cheer them all winter.

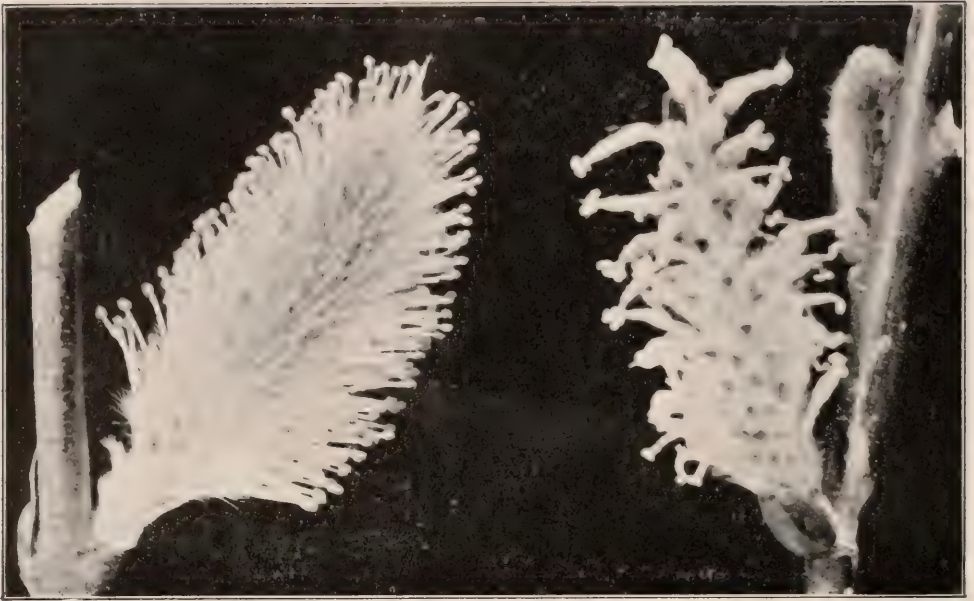
(This gathering of arbutus in bud or

bloom, of course, should not be done in any place where the plant is becoming rare. Nature lovers in Connecti-



A REMARKABLE FIND OF DOUBLE HEPATICAS.

Photograph by Verne Morton, Groton, New York.



MALE AND FEMALE PUSSY WILLOWS.

Photograph by Edward F. Bigelow.

cut have taken the wise action of preventing such annihilation or lessening of the plant by placing on the statute books a law against gathering it with penalty of a large fine.—E. F. B.)

A Few Notes On Nature Photography.

BY HARRY G. PHISTER, VERNON, N. Y.

As an ardent devotee of the camera I have always been intensely inter-

ested in nature photography, especially the photographing of birds, their nests and young. It requires a great deal of patience and a plentiful supply of plates to photograph the birds themselves but the nests and eggs are comparatively easy.

There is nothing more enjoyable, to me, on the bright and beautiful spring days, than to shoulder my



YOUNG RED-EYED VIREOS.
YOUNG LOGGERHEAD SHRIKES.

YOUNG BITTERNS.



NEST AND EGGS OF SPARROW HAWK.
In old flicker's nest.



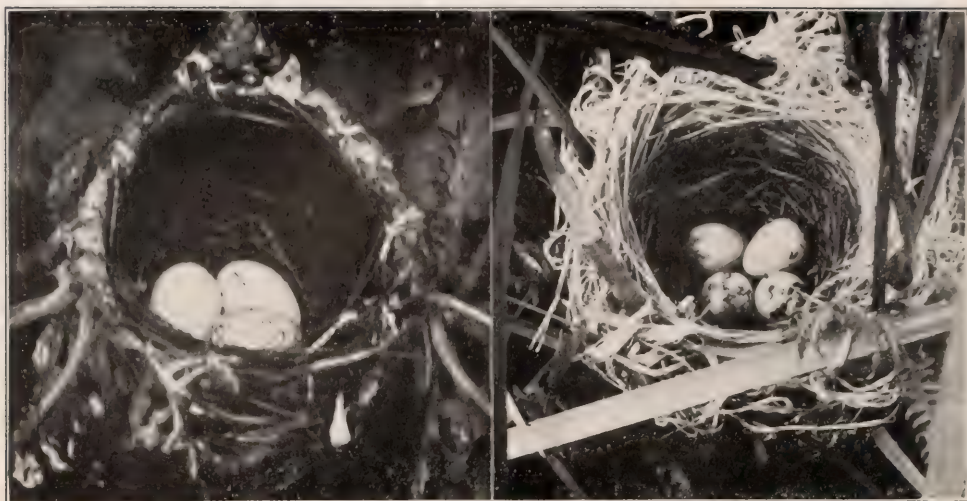
NEST AND EGGS OF CATBIRD.
NEST AND EGGS OF YELLOW-BILLED CUCKOO.



NEST AND EGGS OF KINGFISHER.



YOUNG KINGFISHERS.



NEST AND EGGS OF RED-EYED VIREO WITH COWBIRD'S EGG. NEST AND EGGS OF RED-WINGED BLACKBIRD.

camera and start out in quest of subjects. Many a time I have tramped for hours only to return home without a single exposure, perhaps not finding a single nest and perhaps finding some which it was impossible to get at; but there is always the pleasure of the hunt.

As to apparatus, a long focus camera is essential as, in order to get

a good sized image, one must get quite close to his subject, within two or three feet. I find a ball and socket tripod head a great convenience, in fact a necessity, as it is often necessary to point the camera almost directly downward, although it is not advisable to point it directly downward as by so doing all sense of perspective is lost.



NEST AND EGGS OF PHOEBE.

NEST AND EGGS OF RUFFED GROUSE.



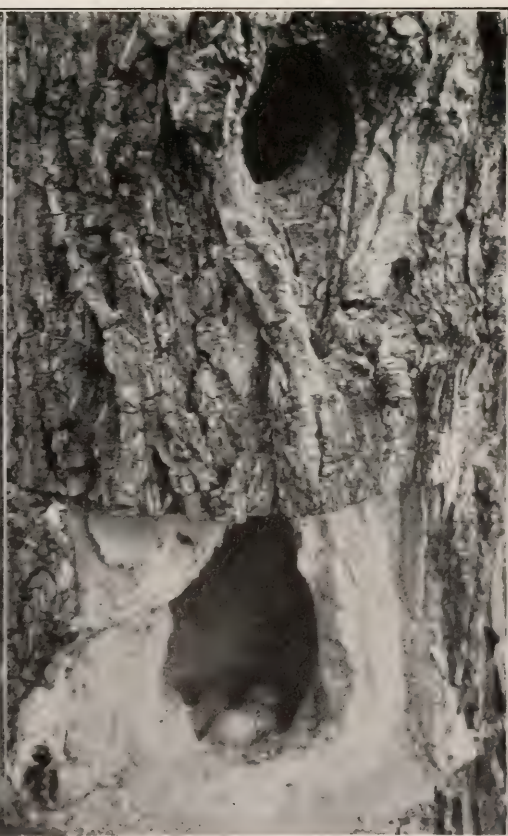
YOUNG MOURNING DOVES.



NEST AND EGGS OF MOURNING DOVE.



YOUNG DOWNY WOODPECKERS.



NEST AND EGGS OF DOWNY WOODPECKERS.

In photographing nests it is necessary to use small stops in order to bring all planes into sharp focus. I usually use U. S. 32 or 64 and give long exposures, from five to ten or more seconds, of course depending upon the light and conditions. Wind is the great bugbear in this work and I have spoiled many plates on account of it.

The nest and eggs of the downy woodpecker were discovered in an old stump near my home. I found it while the old birds were digging out the hole. By the use of a small mirror inserted in the hole I was able to see when the first egg was laid. I then cut out a square piece on a level with the nest. This was nailed in place, and by taking it out at any time I was able to watch the progress. Five eggs were laid which, in the course of time, hatched out into five young woodpeckers. I was unable to get the fifth one out of the nest without hurting it.

The nest and eggs of the sparrow hawk were found in an old nest of a flicker. The sparrow hawks have occupied this nest for several years.

A Plea For More Extensive Photography of Living Fishes.

BY DR. R. W. SHUFELDT, WASHINGTON, D. C.

History goes to show that the writer is among the very first few who have been successful in the matter of scientific photography of living fishes in aquaria. A full report upon the subject, with many half-tone reproductions, appeared in Volume XIX of the Bulletins of the United States Fish Commission for 1899 (Washington, Government Printing Office, 1901), and since then in various foreign and domestic magazines devoted to photography and natural science. To all these the reader is referred for the technique of this class of work. After the Fish Commission had published my contribution along these lines, a number of well-known scientific photographers came into the field who undertook similar experiments, and it was not long before the elegant results of such men as Dugmore and Spencer of New York Aquarium began to appear in our best magazines and various reports devoted to such subjects.

All this occurred a number of years



YOUNG RAINBOW TROUT (*SALMO IRIDEUS*).

THE COMMON SUNFISH (*EUPOMOTIS GIBBOSUS*).

ago, since which time, so far as my observations carry me, but very few photographs of living fishes have appeared anywhere in our literature. This is very much to be regretted, for as compared with the usual hand-drawings of such forms, photography, when properly done, offers a means for correctly portraying the topographical characters of a living fish, far superior to the process just named or any other class of illustration. Not a few things stand in the way or deter us from using the camera, however, in this important branch of photographic art, for the suitable kind of aquarium is not always at hand or obtainable; it is not always possible to secure the fish we desire to photograph alive; the photographer may not possess the requisite skill; and, finally, the fish may be altogether too large to be taken in the manner suggested. Still in the case of medium-

sized fishes, and the other obstacles being overcome, we should always endeavor to make good photographs of living specimens of fishes when it is possible to do so. Of big fishes, of course, we are usually compelled to make hand-drawings.

In the present article are presented some five half-tone reproductions of photographs of living fishes made by me.

My chief object in the present brief contribution, however, is to enter a plea that more of this work be done and there must be not a few of the readers of *THE GUIDE TO NATURE* who are capable of undertaking it. It is not so very difficult, the results are interesting, and if successful are of no little value to science. Usually a suitable aquarium has to be made for the purpose, but the affair is not a very expensive one. It needs to be about fourteen



AN INTERESTING STUDY OF A SEA-BASS.
"Standing" on its reversed pectoral and anal fins.

by sixteen by five inches with zinc bottom and frame. The glass must be well selected, thin, and entirely free from all blemishes of any description. Inside, the bottom should be covered with about an inch and three-quarters of perfectly clean sand and small pebbles, in which may be anchored a pretty bit of pond weed with a small, shapely stone or two to hold it in place. Sometimes such an aquarium may be placed where a sky background is commanded, as on a broad window sill upstairs, or some elevated point out-of-doors where

desire to photograph. Focus on some point within the aquarium opposite the middle of the front glass and far enough above the bottom so as to include the pond weed, rock, pebbles, etc., to give a natural appearance in the resulting negative. This is the point you desire your fish to pass or come to as it swims about. As it does come there two or three times, test your focusing to the finest possible sharpness on the ground glass. Next set your shutter, gauging the speed to the degree of activity of your fish, and



YOUNG OF SNOWY GROUPER (*EPINEPHELUS NIVEATUS*).

only the sky can be seen through it. If neither of these are convenient, use a big sheet of clean white blotting paper for a background. In any case be sure that no reflections are in evidence on any of the glass sides, a fact you can satisfy yourself of by studying it through the camera. The latter wants to be a good one, with a tripod, and the very best lens you can afford. Now you are ready to introduce the fish you

then wait patiently for it to come to the selected point within the aquarium. Do not be in a hurry, let the specimen quiet down as much as possible; if it be an accommodating fish the time will come when it will swim to the desired point with the required deliberation. This is your opportunity—make the exposure. A few failures must not discourage you; keep at it until you have some results to show that are worth



LARGE-MOUTHED BLACK BASS.



YOUNG OF BIGEYE (*PSEUDOPRIACANTHUS ALTUS*).

the while—with plenty of patience and increasing experience you will not regret either the time or the labor expended.

The Camera Chiefly a Tool.

It is to be regretted, notwithstanding the widespread use of cameras of all grades of value and size, that there is such a lack of real interest in the instrument itself. Ask ninety-nine hundredths of the camera users for full particulars in regard to the aperture, the focal length and other features of his lenses; the extent of the swing, side and back, of the meaning of the figures on the diaphragm, and they will be unable to tell you.

To our old camera users who are familiar with the intense interest of the amateur microscopist of some fifteen or twenty-five years ago, this state of affairs is astonishing. It is undoubtedly true that at times the microscopist of those days carried his interest in the in-

strument to an extreme. The demands that he made on the optician were often ludicrous. Not long ago one of our manufacturing opticians said to me, "You would be amused to see the strange requests we had for grading and marking everything movable on the microscope." Even if some of these are unnecessary they represent a commendable enthusiasm for a wonderful tool.

A camera as a tool is no less wonderful, and should be the object of a reasonable amount of interest. Think of the love or the friendship that has no regard for the person of him for whom one has the affection, the friendly feeling! Do you put in the cellar the friend whom you respect, or when he calls do you entertain him in the chicken-house? Do you leave your camera under the dripping eaves, or let the cat sharpen her claws on its surface? The camerist should love his camera or should at least be on friendly terms with it, which means that he

should know something of its history, a great deal of its structure and much of its possibilities. But how many obtain a new camera, read the directions, "You press the button and we do the rest," or some similar and equally terse directions for making exposures, and then never get beyond that stage.

I recently sat for a portrait in the gallery of one of the expert photographers of Boston. When he made the exposure he looked at me and leaned his head over against the lens, perhaps to see the exact point of view the same as the lens did, yet in doing so he manifested a real love and a sympathetic interest for his camera. He eyed me thoughtfully. He pressed the bulb, looked at me intently and pressed the bulb again to close the shutter.

I inquired, "Do you count to decide the length of exposure, or do you ever use a watch?"

"No," he laughingly replied, "I feel it; I am in sympathy with the camera and know just what it and I are doing."

Here is a good suggestion for any photographer. Put yourself so in sympathy with the camera that you "just feel it." The camera is your friend; you should know how things seem to your friend.

Such a feeling should be experienced or cultivated by the photographer whether the camera is a cheap hand affair or an elaborate studio outfit; it is only by having such a feeling that the best results can be obtained.

Drummond should have had, and perhaps did have, a camerist in mind when he said of love, "It is the greatest thing in the world." To paraphrase the saying of a well-known naturalist, "Do you want to take pictures or do you want to want to take them." In other words, are you really in love with the art or do you merely want to get into the swing of the popular fad and take pictures only because other people take them? The camera is more than a tool; it is a thing for which to have the deepest sympathy. It is worth more than promiscuous snapping just to use up the rest of the films; it is worth making it an end in itself.

"Let the Blessed Sunshine In."

Here the ravine is saying this plainly, effectively and beautifully. This photograph of "Sunlight and Shade" is one of the most beautiful that has come to my desk. It is the work of W. Bush, Redlands, California.

Our readers are familiar with the



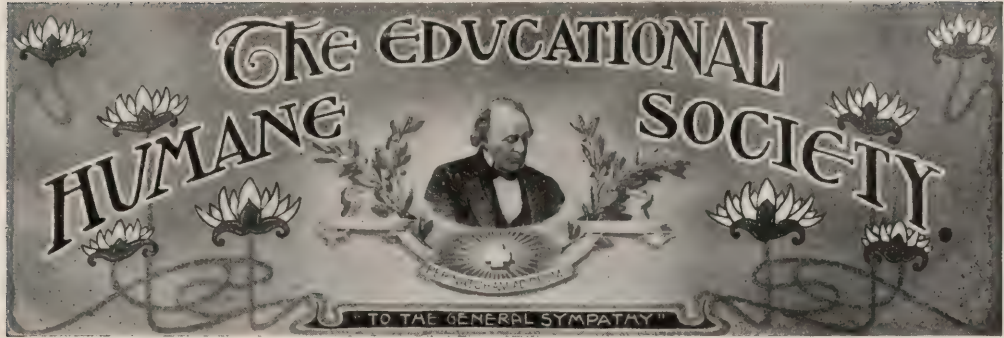
THE SPRING SUNSHINE IN THE RAVINE.

oft repeated injunction that every photograph must say something. This photograph more than merely "says" it. There is an eloquence of expression. Words cannot add to the expressiveness of this photograph. Can you equal it?

A Real Problem.

Dreamer—Did you ever think what you'd do if you had Rockefeller's income?

Mugley—Yes; and I've often wondered what he'd do if he had mine.—*Catholic Standard and Times.*



A Chapter of the Agassiz Association. (Incorporated 1892 and 1910.) The Law of Love, Not the Love of Law

Taming an Adult Ruffed Grouse.

BY ERNEST L. NIXON, ATHENS, OHIO.

When I was twelve years old my work during July was picking berries. One of these trips is especially prominent in my boyhood memories. On this particular morning I started out very early, for the berry patch was nearly two miles away. It was my rule to stay in the field until my "buckets were full," but on this occasion I had scarcely entered the patch, when a large bird, which I immediately recognized as a grouse, flew out of the briers and perched on a small persimmon tree. This I thought a little unusual for I had never seen one of these birds in a tree. Cautiously approaching the tree I shook it and the bird flew to the ground and ran under some running briers. This enabled me to capture it with little difficulty. How surprised and glad I was when I had it first in my hands, then in my arms, caressing and talking to it as though it were conscious of my actions.

I did not "fill my buckets" this day but immediately started for home. The journey seemed longer than ever it did—but how I did walk! When I reached home, I prepared a store-box for my pet, which I afterwards called Polly. Then I offered her a bountiful supply of bread but she did not eat it as I had hoped she would. Later in the day my father suggested that I feed her what she would get were she in the field, so I went out in search of grasshoppers and other insects.

These were found in abundance almost everywhere and these proved very acceptable to Polly. After so many years I am unable to make an estimate concerning the number and kinds that my bird would eat, but I recall distinctly that it soon became a burden to capture enough to satisfy her.

I kept up my task of collecting and feeding for several weeks and Polly became quite tame. I could now reach my hand into the box and stroke her sleek feathers. At last—pleasure of all pleasures—she would alight on my arm and eat from my hand. Finally the sad day came when my father advised that I let her out, as he said, I could not feed her during the winter and she ought to be out for a time while the weather was warm in order to learn how to gather her own food. He went with me to give her her freedom. I lifted a board and away she flew. My father said: "That is the last of her." How sorry I was! But oh the pleasure to find, within an hour, that she had returned again to her box. It may be that she had returned to teach me one more lesson in the care of wild birds. I found her enjoying a dust bath in front of her home—the first since her capture.

Polly was given her freedom late in August. She continued to come back daily for several days and always to roost in her box. Her visits became less frequent and finally ceased entirely and so I gave up ever seeing her

again. One morning in December after a heavy snow had fallen, Polly flew in from the nearby woods and settled on the ground a few feet from me and the hens which I was feeding. After coaxing for several days she would again eat from my hand and alight on my shoulders. On unfavorable days throughout the winter Polly was present at the regular feeding time. When spring came she left again and often remained away for several days gradually growing wild.

Once when she came back I noticed that she was a little more affectionate than usual and allowed me to catch her. I found that one side of her head had been picked fearfully. It seemed that she must lose one of her eyes, but I doctored her for several days and she recovered and then began to leave me as before.

A few weeks later Polly returned for the third and last time. The first time she came for food; the second time for care; and the third time to escape her enemy. This last visit was witnessed only by my mother. The enemy was a large hawk. My mother was alone and the doors were open. A sudden noise and Polly was hiding beneath her chair. As she looked up from her work the hawk that had followed was escaping through the opposite door. In a short time Polly left and that was the last time that any of us ever heard of her.

It is interesting after several years to go back to this experience. The capture and care of Polly was an important event in my boyhood. To keep my pet I must learn a few lessons well. All of them meant much to my wild grouse and scarcely less to me. It is difficult to describe the care and patience necessary to coax fear away from one of these adult birds and I shall never forget the joy it gave. I found the world full of insect life but my bird could eat more than I could collect. At that time I found it easy to explain Polly's return. I knew she remembered and trusted me and even now I like to believe it still.
February, 18, 1911.

A Family of Starlings.

BY LOUIS S. KOHLER, BLOOMFIELD, N. J.

Near my study window is located a box which my father erected many years ago for, as he would say, "The wrens and bluebirds." His desire that this box be tenanted by these sociable little feathered friends was, however, never fulfilled as a few days after the cot was placed in position a family of exotic sparrows established themselves therein and for a number of years occupied this box. In 1908 a pair of starlings came and laid siege to this long established sparrow stronghold and after a week of intermittent conflicts drove off the occupants and began building for themselves. The box is so arranged that it may be cleaned from year to year and after these beautiful exotics had prepared their home and the mother bird had deposited her eggs I became a regular visitor at her home.

On the second of May the clutch of five greenish-blue eggs was completed and was carefully guarded by her until they hatched on the seventeenth. Her lord and master put up some very stiff arguments whenever I approached near his faithful little mate and would pounce down upon my head and try to peck at my eyes whenever the opportunity was offered. He nearly succeeded several times and I took the precaution on subsequent visits to put on a pair of goggles so that no serious results might happen. After the eggs hatched both parents brought food for their offspring in great abundance. Their menu consisted principally of tidbits from a neighboring refuse pile and ripe cherries. I did not see or find at any time insectivorous food of any description brought to these nestlings during all of my observations. These were carried out at all times of the day and from a position which commanded the situation and nearly all of the visits were recorded. The youngsters remained in the nest for twenty days and then only left because it would no longer hold them. On the twenty-first day they sat throughout the day on the edge of the box in a manner similar to that of young flickers or kingfishers enjoying

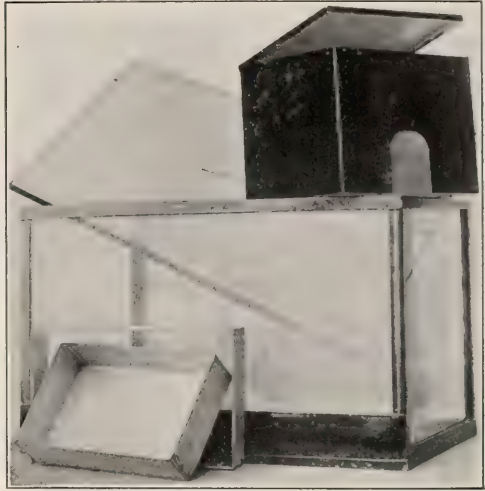
the warm sunshine and whenever the parents would appear a lively battle would ensue for the possession of the morsel brought. On the twenty-second day they ventured to fly and after several ineffectual attempts landed upon the ground for rest. At this juncture came a period of much excitement and great grief for the parents as two of the young fell prey to a big grey cat. I rushed to the rescue and the three remaining ones were so frightened at my approach that they gathered up courage enough to attempt another flight and this time succeeded and when I last saw them this day were in a pine tree about fifty feet distant from the box. After this the family did not come to the nest for ten days. They then returned and remained without intermission until March 14th, 1909. At this time a large flock of these birds appeared in the vicinity and my starlings attached themselves thereto and then were lost sight of for all time.

An Ideal Vivarium.

A great variety of cages for birds and for fourfooted animals have been invented. Many kinds of aquaria, varying from monstrosities in the form of a dish, to large and serviceable tanks, may be seen in some private residences and in places of public exhibition. There are hundreds of kinds of flowerpots, boxes and other receptacles for keeping plants in comfort and for the adornment of the home.

For several years inquiries have been coming to me in regard to the keeping of frogs, turtles, salamanders, but I did not know of a really serviceable form of terrarium and vivarium, until I myself invented one that to me at least seems to be ideal. My suggestions have been accomplished in cooperation with the Aquarium Specialty Company, New York City, who have placed the new form upon the market. It is illustrated herewith. Three sides and the bottom are of glass; the other side and the cover, which is easily removable, are of galvanized wire netting. In the interior there is a dark chamber under a hinged floor so that the chamber may be examined from above, or the whole thing easily removed for cleaning. A "bath-frame" is pro-

vided to be set among the pebbles or on the earth, the dish or "bath-proper" being removable. Such a form is needed to prevent the pebbles or other extraneous



THE "ARCADIA" VIVARIUM.
Designed by Edward F. Bigelow.

matters from caving in when the dish is taken out for cleaning. The whole thing is simplicity itself and provides, at moderate expense, an ideal home for our cold-blooded animals with four legs or without any.

Cruelty to Animals.

Palmer, Massachusetts.

To the Editor:

From my early childhood I have been a great lover of nature and of animals. My youthful years were spent in a home on the Hudson River, where nature's treasures were deeply appreciated.

Of late years I came to these wooded hills of Massachusetts, where health may be renewed amidst the endless delight of the woods and streams of this healthful region. Within my little domain I seek to have all animals, wild as well as domestic, protected and made happy. The deer have given great pleasure to animal lovers, but alas! the persistent petitions of hunters and farmers have brought about a new law in five counties of the state, allowing residents to kill deer found damaging any crops or fruit

trees; and also providing an open season of one week in November of each year, when any licensed hunter may pursue and kill wild deer in these five counties. The result last autumn of this open season was a sickening slaughter and wounding of the beautiful deer, which had increased and become tame during the years of protection. The protests of the Massachusetts Society for Prevention of Cruelty to Animals have so far had no effect. If the deer are too numerous in some localities to suit captious complainants, surely the state can suggest some humane way to lessen their numbers. It is, however, a well known fact that the numbers of the deer and the damage done by them have been greatly exaggerated. Having resided here for some years, I am able to state positively that the deer have not recently been seen in groups of more than eight or ten at a time. They inhabit my extensive woods, traverse my meadows and do no harm of any kind. The apples are just as abundant, and where the crops have been nibbled here and there, the result is not noticeable in the harvesting.

As to the hunters, it is well known that they are eager to pursue and destroy all birds and animals everywhere in the woods. They procured an open season of a month in which to kill the harmless grey squirrels, one of the most fascinating inhabitants of the groves. They have destroyed all the quail in this region and made partridge scarce. Posting of their lands by owners and other efforts for protection of wild creatures become each year more ineffectual against the invasion of lawless hunters. As to the trout, it is hopeless even to try to protect them. Some stringent laws should be passed to aid those who would

save some of the wild creatures for posterity.

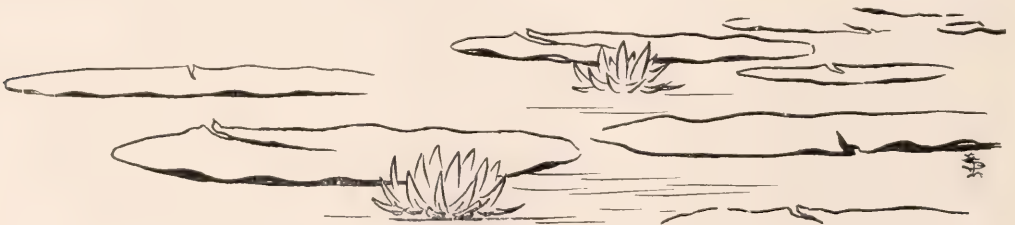
The subject of vivisection has become prominent lately, and it appears to any reasoning person that the vivisectors are hiding some dark doings behind their closed doors. The rage and rancor with which they oppose any and all suggestions for inquiry into their ways, and for the restriction of their practises arouse suspicion. The venom with which certain doctors attack through the press any one who dares to defend the defenceless animals, is enough to turn people generally against the medical profession.

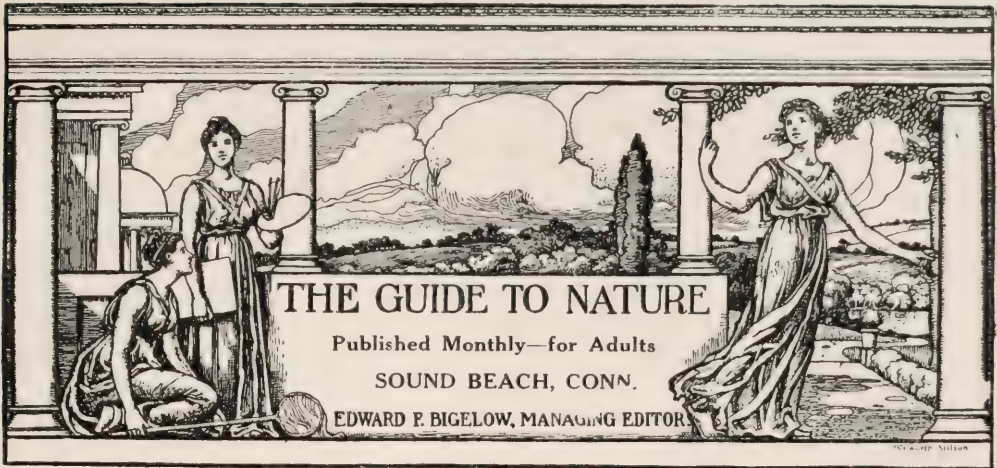
One cannot wonder that some physicians are callous and even cruel toward human beings when such a spirit dominates them. The autocrats of the medical profession forget that in these days people generally do their own thinking, and that the doctors are no longer a privileged and revered class, but can be made amenable to law. That noble philanthropist, Phillip Brooks, has aptly said: "Theology and medicine, the minister and the doctor, make the same mistakes. Both of them are liable to lose sight of their ends in their means, and to elaborate their systems with a cruel heartlessness, forgetting for the moment the purposes of mercy which are their warrant for existence."

Thus theology has driven human souls into exquisite agony with its cold dissection of the most sacred feelings; and medicine has tortured sensitive animals in a recklessness of scientific vivisection which has no relation, direct, or indirect, to human good."

A NATURE LOVER.

L. B.





Incorrect and Fanciful Derivations.

This title was suggested by reading the following item in the "Nature and Science" department of "The Youth's Companion:"

The Snail and the Screw.—It is no doubt true that nearly all human inventions have been suggested by natural objects. Mons. Charles Fremont, of the French School of Mines, points out an interesting example in the case of the screw, the fundamental idea of which, he believes, was suggested to primitive man by the spiral shell of the edible snail. It was not the shape of the shell that suggested the screw, but the spiral motion which it is necessary to give to the body of the snail in order to withdraw it from the shell. This at once showed that an object of a screw shape embedded in a solid powerfully resisted attempts to withdraw it by a straight pull. The hint was enough, and the screw became one of the earliest of man's inventions.

How prettily but how remotely ingenious. Who can dispute it? How subtly it catches our fancy and excites our interest. But on second thought there come to mind the conclusions of another philosopher, Josh Billings, who said, "It's better to know fewer things than so many things that aren't so." Yet some one who likes to roll such interesting derivations under the tongue inquires, "How do you know it isn't so?" I did not say that. Of course the man to whom you are paying five dollars a day to "jack up" your building, or the plumber who is getting seventy-five cents an hour for cutting the threads on your water pipes, may both

date their inspiration back primitively to the snail, or they may not.

What an ingenious theory it is that the horse-chestnut is so called because the leaf scars are horseshoe-shaped and have tiny spots in them to represent nail holes. Never mind the fact that many other trees, notably the ailanthus, have scars more perfectly horseshoe shaped; never mind the fact that the word horse is commonly applied to things large and coarse, as, for example, horse-radish, horse sense, horse laugh. If you are not poetically inclined, nor of an economic turn of mind and the horseshoe and nails do not appeal to you, then relegate the whole matter to southern India or north-eastern Russia or wherever nobody will go to verify it, and assert that the rude peasants—do not forget to put in the word rude—grind these large chestnuts and with them stuff their horses. I say "stuff" advisedly, for undoubtedly one would need to stuff the horses to make them eat the bitter food.

"But don't you really believe they feed horse-chestnuts to their horses over there?"

"Stuff and nonsense" often go together.

But you know that horsehair snakes are developed in watering troughs from the hairs that fall from the tails of the horses which drink there? Of course; but I wonder why the hair is taken from the tail rather than from the mane which is nearer the trough. Never mind the un-

important fact that the horsehair snake is horsehair in form only, but in reality is an internal parasite (*Gordius*) of the grasshoppers.

Of course you know better, because, when you were a boy, you many a time pulled the hairs from horses' tails and put them in water to see them "turn" and squirm. And Bill, who lived down the road under the hill, doted on that kind of thing. He did it, as you well remember, even more frequently than you. And now that fool naturalist, what a mean, unfeeling wretch to destroy the beautifully poetic idea. I know you had lots of fun; nobody disputes it. You were an inquisitive, investigating boy; why don't you get young again? Repeat some of that fun now. Get a bottle of water and a horsehair now and repeat the experiment. But do not tell us how much more you know about nature than the naturalist knows. Perhaps you are a naturalist.

But to come back to this derivation of certain mechanical forms from nature objects. Of course we did not get the notion of the screw from the snail, nor of the monkey wrench from the monkey. Many, probably most of these derivations are fanciful and incorrect. It is true that certain of the lower animals, notably the insects, have organs somewhat resembling some of our mechanical tools, but as they are small, often invisible to the naked eye, that these organs suggested the tools is hardly possible. That the long, filamentous ovipositor of the ichneumon fly suggested our awl is unthinkable. That the serrated ovipositor of the common sawfly suggested the saw is impossible. The sawfly's ovipositor is visible only to the microscope, but the saw was invented long before the function of lenses was discovered. The monkey wrench has no reference to any monkey. It is claimed by some that it was invented by a Frenchman named Monghie, who at the time lived in New Jersey, where Monghie wrench soon became corrupted into monkey wrench. There are also plenty of other "explanations."

Yes, the evolution of the arts from the world of nature is a wonderful study! And the transformations in nature are

even more interesting. But the uncontrolled play of the uncultivated imagination is still more interesting, and still more dangerous. All ignorance is dangerous, or may become so. Our ignorance of the transmission of disease germs by mosquitoes and other insects has cost what the reader perhaps already knows. Popular literature is crowded with fanciful assertions about nature and natural objects. Well informed readers might spend their lives in an attempt to run to earth such statements, and would die with the falsehood far ahead, out of sight and still gaining speed. Any effort toward the correction of such errors is usually a waste of labor and of time. But the editor who disseminates the assertions, or allows his contributors to do so, what of him?

A Bee-Paper Editor's Epitaph.

Editor Hutchinson, of the *Bee-Keepers' Review*, says this in closing a recent editorial item:

"When I am dead and gone I wish to deserve the epitaph: 'He taught us to keep more bees.'"

It seems to us a better epitaph would be this: "He showed us how to produce more honey." One might "keep more bees" and not get more honey than from less bees. Honey is what bee-keepers want. However, every man to his own preference, whether it be "more bees" or "more honey."—*American Bee Journal*.

Wrong you are, Editor York, and Brother Hutchinson is right. And what else might one expect but the right on this subject from one whose slogan is "more bees" and who has recently been for many weeks almost at death's door in his long siege in the hospital?

Honey is for this world; bees for the next. Perhaps I had better amplify that to make my meaning clear? Honey is for the dollars, the stomach, the utilitarian—it is of the earth, earthy. Bees are for the heart and the head, for mental interest, for uplift of the spiritual—these are heavenly. Bees fit the epitaph; honey the appetite.



Established 1875

Incorporated, Massachusetts, 1892

Incorporated, Connecticut, 1910

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From the Charter of Incorporation: "The purposes for which said corporation is formed are the following, to-wit: the promotion of scientific education; the advancement of science; the collection in museums of natural and scientific specimens; the employment of observers and teachers in the different departments of science, and the general diffusion of knowledge."



*With great regard
Yours very truly
Rehoboth, August 25,
1862. L. Agassiz*

AGASSIZ AS A TEACHER

HE spoke with intense earnestness, and all his words were filled with that deep religious feeling so characteristic of his mind. For to Agassiz each natural object was a thought of God, and trifling with God's truth as expressed in Nature was the basest of sacrilege.

And the Summer went on, with its succession of joyous mornings, beautiful days, and calm nights, with every charm of sea and sky: the master with us all day long, ever ready to speak words of help and encouragement, ever ready to give us from his own stock of learning. The boundless enthusiasm which surrounded him like an atmosphere, and which sometimes gave the appearance of great achievement to the commonest things was never lacking. He was always an optimist, and his strength lay largely in his realization of the value of the present moment. He was a living illustration of the aphorism of Thoreau, that "there is no hope for you unless the bit of sod under your feet is the sweetest in this world—in any world." The thing he had in hand was the thing worth doing, and the men about him were the men worth helping.

—David Starr Jordan in "Agassiz at Penikese."

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Chapter Organization Expense.

Entrance Fee	\$1.25
Handbook, "Three Kingdoms"75
Engraved Charter, mailed in tube ...	1.00
Total necessary expense to a Chapter upon joining the Association	3.00

Annual Dues.

The Annual Dues for Chapter	2.00
The Annual Dues each Member of Chapter05

Corresponding Member's Expense.

Entrance Fee	\$0.25
Handbook, "Three Kingdoms"75
Certificate of Membership50
	\$1.50
Annual Dues	1.50
	\$3.00

Student Members are required to make a report at least once a year. This report should contain not only a statement of work done, but of "the promotion," "the advancement," etc. See quotation from Charter. We are to help others as well as ourselves. Extend the influence of the AA.

The Annual Dues include payment for subscription to The Guide to Nature.

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Life Member (paid at one time)	\$100
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Founder	\$5,000
Benefactor	\$25,000

Cooperating members may, if they desire, be enrolled as members of The Educational Humane Society, which is a Chapter of the Agassiz Association. Its work is general and world-wide. It believes in the law of love, rather than the love of law.

A Variety of Interesting Studies.

REPORT OF CHAPTER 1017, Y. M. C. A.
TRAINING SCHOOL, SPRINGFIELD, MASS.
BY HERM. G. HAESÉ, SECRETARY CHAPTER
1017 A. A.

Chapter 1017 of the AA has this year an enrollment of twenty-one enthusiastic nature students. The officers are: president and treasurer, Arthur Lockley; secretary, H. G. Haese.

The Chapter during the year has been privileged to have as a member Prof. G. B. Affleck who gave much time and thought for the benefit of the rest.

Early last spring each member secured a cocoon of the *Cecropia* moth and at each succeeding meeting reported the result of their observations, thus becoming familiar with the various stages of the development of the beautiful creature. Later in the season, interesting studies were made of the blossoms of various trees and shrubs with the aid of a microscope. An aquarium was secured and in it were placed specimens of brook life. The lives of the tenants have been of interest to all.

Since the reopening of school in the fall, the members have made a special study of oak trees and acorns. The alternate meetings of the chapter were held in the depths of the woods. On these excursions all departments of nature were studied and discussed. One trip was made to the camping site of an ancient local tribe of Indians. Most of the trampers secured specimens of stone chippings.

In February, Dr. Bigelow paid us a visit, first addressing the Chapter, and later, showing a magnificent set of slides, on the beauties of nature, to the whole student body. This was much enjoyed by all.

Now that spring is coming on once more, the members are looking forward to some enjoyable field days.

The year's at the spring,
And day's at the morn;
Morning's at seven;
The hill-side's dew-pearled;
The lark's on the wing;
The snail's on the thorn;
God's in His heaven—
All's right with the world. (R. B.)

Annual Report of the Mount Bluff Chapter.

Mount Bluff Chapter held regular monthly meetings from March to September inclusive. The order of business in the AA handbook was followed, each member giving a report of observation or of work. Last year we did not add any literary part to our programs, which we feel was a mistake. This year we plan to have one number on each program to present the experiences of writers and biographical sketches of leading naturalists. The remainder of each program is to be filled with questions and with discussions of our own work.

On August fourth our Chapter had its annual field-day, driving about ten miles to Seymour Lake where one of our members was spending her vacation in a lakeside cottage. The day, in spite of several heavy thunder-showers, was pleasantly and profitably spent, although in the afternoon the woods were too wet for extensive exploration. A list of wild flowers seen during the day was made, thirty-six varieties being identified and several "strangers" observed. The flower list included: Queen of the meadow, meadow rue, hop clover, black-eyed Susan, white daisy, clover-red, white and alsike, buttercups, spreading dogbane, turtlehead, blue vetch self heal, yarrow, white aster, purple aster, fireweed, paint brush, St. John's wort, iron weed, lobelia, ladies' tresses, purple-flowered orchid, Indian pipe, wild clematis, Canada thistle, bedstraw, Joe Pye weed, tiger lily, (evidently escaped from some garden, but growing by the roadside), chicory, pink burweed, jewelweed, goldenrod, wild mustard, sweet everlasting, primrose, Philadelphia fleabane, alternate-leaved dogwood.

Sixteen species of birds were observed during the day, most of them in the trees near the cottage, which stands in a large grove of mixed timber and affords an ideal spot for bird study. This list included, black and white creeping warbler, black burnian warbler, great-crested flycatcher, chip-py, cedar waxwing, junco, chickadee, yel-

low warbler, crow, barn swallow, robin, chimney swift, sandpiper, red-eyed vireo, partridge or ruffed grouse, black-throated green warbler.

The black-throated green warblers were present in great numbers; evidently the close evergreen growth just above the cottage suited their requirements for a summer house. We watched the pretty creatures feeding their young, which were fully grown, yet were waited upon assiduously by the parent birds. The young birds were much lighter in color than the old ones—a pale dove-gray taking the place of the black, and the black showing more yellow than green. They are dainty little creatures. In their motions and habits of perching they have many of the traits of the chickadee.

In the woods we found many beautiful fungi, but none of us could identify them.

A "census" of the birds has been kept by the President of the Chapter, fifty-five species being noted, with date when seen. This is the fourth year that the record has been kept; and I have found it a source of pleasure and inspiration.

In addition to the work mentioned above, we have each made such individual observations as we could, and I am sure that all have felt the uplift of the work. The members are acquiring the "notebook habit," having learned how much more vivid impressions become when we put them in black and white. One member began a collection of water-color sketches of wild flowers and fungi in their native haunts, and these she intends to work at during the coming season; and all are prepared to make memoranda of the arrival of this year's birds. At present winter holds us fast, with more than five feet of snow on the level; but the wild geese have gone over, and the crows have come, so spring is surely on the way.

For success for our dear AA,

GRACE H. SADLEIR,
President.

Commendable Instances of Original Observation.

BY HARRIET E. WILSON, C. M. NO. 2101,
STORMSTOWN, PENNSYLVANIA.

My nature study, particularly mineralogy, has been interrupted for various reasons, more than anything else, perhaps, on account of too much home keeping.

While about my work, or resting on the porch, or eating my meals as I sit opposite a window, I would watch the insects and the birds.

I was greatly interested in the fertilization of flowers by insects. This is an instructive study, as it is possible to find a mark on the flower which guides the bee or other insect to the nectar.

While I was eating my dinner the other day, a black and white woodpecker was picking at a post of the grape arbor; a wren on the top of the arbor was hopping back and forth, very much interested in the work. I wondered if she was waiting to make a nest in the hole, but the woodpecker was not successful in getting a hole big enough for even the small bird. I have not seen either since that day.

Last summer I was much interested in the humming birds. I tried and tried to prepare a description of them. They seemed more numerous last summer than this. The back is green or bronze and shows a beautiful play of colors as the sun strikes it; breast and abdomen gray; wings and part of the head black; wings gauzy when in rapid motion; visits trumpet flowers, lilies, scarlet sage, verbenas and gladiolus. The first humming bird of the spring I observed on the twelfth day of May hovering about the *Dielytra spectabilis*. Of the four hundred varieties or species of humming birds what is the name of this one? (Probably *Trochilus colubris*, the ruby throat.—Ed.)

The white cabbage butterflies seem to prefer the radish blossoms, while not ignoring the tomato blossoms, nor the corn, nor the beans, nor, in the absence of these, the low mallow or buttonweed which is preferred to the cabbage. I suppose they lay their

eggs on the cabbage to furnish the larva an abundance of food easily attainable.

I feared that the old-time hollyhock would become a flower of the past as something was eating the leaves, leaving nothing but the large veins. Some Paris green mixed with wood ashes, sprinkled over the plant when the dew was on, settled the case and now the hollyhock is blooming.

Last summer something attacked a young plum tree; at points only a few inches apart along the stem the gum oozed out. I tried different remedies and failed. This summer I had another plum tree affected in the same manner only not so severely. I was told that an "old woman's remedy" was to wash the tree with boiling soap-suds. I followed the advice and saved its life. The leaves of a young pear tree were curled and full of black insects, probably lice. It received its share of soap-suds.

Now it is a young peach tree turning yellow that must be doctored.

Here is a table full of common-looking specimens mostly flint, or of quartz waiting for me to test them for gold. There is a soft one, with a hardness of one in the scale of hardness; it may be scratched with the finger nail. The quartz family is large and this is a variety of opal. It is tripolite or siliceous tufa, and was found on the surface of the ground. There is a vein of it in the lower Silurian limestone of the Trenton period. A small boy collected some calcite while the stone crusher was at work. He observed the white and blue stones, as he called them, and gave them to me.

Through my negligence I mourn the loss of my honeybees. Some unprincipled person robbed them late last fall, and I neglected to feed them a syrup of sugar and water. They were flying in great numbers in front of the hive in March, the last time that I saw any of them alive. I should have known, when they came out in such numbers at that time of the year, that something was wrong.

I have profited greatly in the bloom of dahlias from reading "Up-to-Date Dahlias and Their Culture" in **THE GUIDE TO NATURE**.

The Wise Mother and Foolish One.

When God gives us a child it is not that we may teach him, but that he may teach us. The wise mother seeks to develop her child's personality; the foolish mother would change it. The wise mother plays with her child and lets strangers instruct her; the foolish mother instructs her child and lets strangers play with him. The wise mother is good for her child's sake; the foolish mother wants her child to be good for her sake.—*The Reverend Frank Crane in "The Ladies' Home Journal."*

Literary Notices.

The Lens Part of Photography. By R. D. Gray. Price 25 cents. Ridgewood, N. J.: Gray-Lloyd Manufacturing Company.

This is a small pamphlet containing several good suggestions and convenient tables relating to the value and use of photographic lenses.

How to Attract and Protect Wild Birds. By Martin Hiesemann. London: Witherby & Company, 326 High Holborn.

This is an admirable treatise on bird protection and preservation, and contains good plans for nesting and feeding devices. It can be obtained from the National Association of Audubon Societies, New York City.

The Face of The Fields. By Dallas Lore Sharp. Boston and New York: Houghton Mifflin Company.

These papers by one of the leading nature-writers include such attractive topics as "Turtle-Eggs for Agassiz," "The Scarcity of Skunks," "The Commuter's Thanksgiving," etc. Mr. Sharp has a vein of mingled tenderness and humor such as is not to be found in any other American nature-writer.

The Religion of Beauty and The Impersonal Estate. By Ralcy Husted Bell. New York City: Hinds, Noble & Eldredge.

The author's purpose is well summed up by the following quotation from the preface: "Finally, the golden threads of contentment, of joy in things that are—the pictures that surround us, the ecstasy of life within us and all about us, the everyday poetry and gladness of earth, the beauty everywhere—will unify the whole with sweetness, simplicity and peace—a kind of religion—that shall be good for the soul and refreshing to the body."



'Tis not in mortals to **COMMAND** success, but we'll do more, Sempronius, we'll **DESERVE** IT.—*Addison: Cato.*

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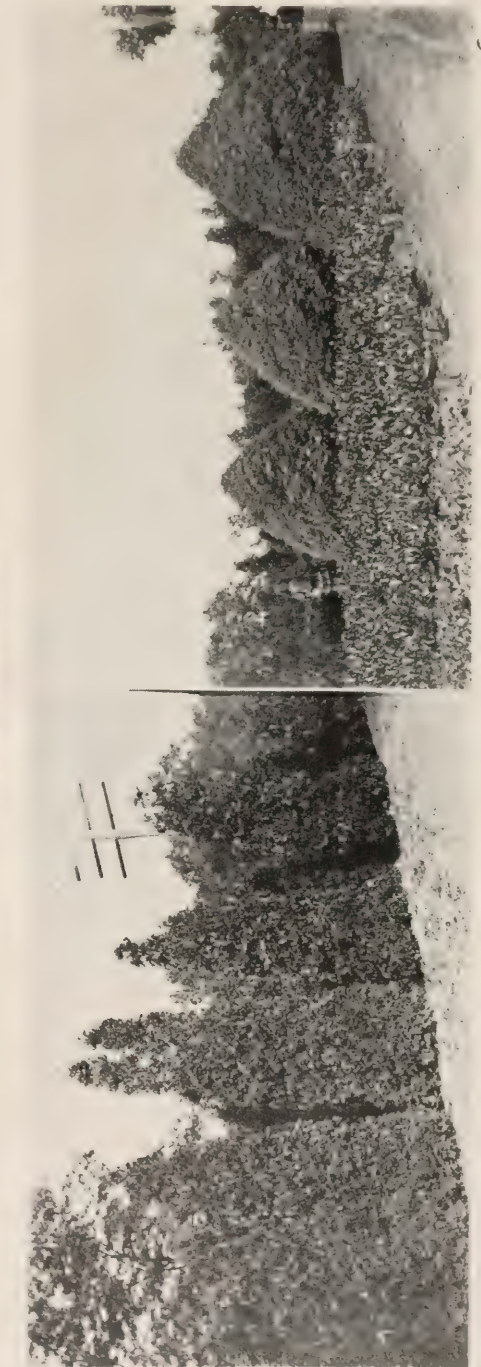


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